REPORT
OF
THE HIGH LEVEL SALT ENQUIRY COMMITTEE

NEW DELHI
JULY, 1980

Government of India
Ministry of Industry

CONTENTS

CHAPTER	DESCRIPTION	PAGE
	Summary of Conclusions and Recommendations	1
I	The Scope of the Study	8
II	General	10
III	Demand of Salt	12
IV	Present Production of Salt, Production of Salt Required to meet Projected Demand and Potential for Increasing Production	15
V	Distribution of Salt-Zonal Scheme, Storage and Retail Distribution and the Use of Salt Golahs in Calcutta	25
VI	Costs and Prices	30
VII	System of Licensing of Salt Works, Exemption upto the Limit of 10 acres, Salt Cess Fund, Operation of the Salt Cess Act, Rules, Code of Principles for Assistance from the Salt Cess Fund	36
VIII	Progress in Research and Development, Model Salt Farms, Research Stations and Regional Quality Control Laboratories	42
IX	Specification and Standards	44
X	The role of the Public Sector	47
XI	Labour and Employment	49
XII	Recovery of by-products	51
XIII	The Functioning of Cooperative Salt Works and Measures for Promoting the Formation of Cooperatives	52
XIV	The Revised Functions and Organisation of the Salt Department	53
	Signature of Chairman and other Members of the Committee	56
	Note of Dissent by Shri K.L. Sahni	57
	Note of Dissent by Shri S.C. Aggarwal	59

सत्यमेव जयते

LIST OF ANNEXURES

CHAPTER No.	ANNEXURE No.	PARTICULARS	PAGES
I	1	Copy of the Resolution	62
II	2.1	Summary of the Recommendations of the Salt Experts Committee, 1948	65
	2.2	Summary of the Recommendations of the Manubhai Shah Committee, 1958	81
	2.3	Summary of the Recommendations of the Patel Committee, 1947	83
III	3.1(a) to (d)	The Pattern of Consumption of Salt 1969 to 1978	86—89
	3.2	The Projected Demand of Salt and Exports, Statewise, 1980 to 1988	90
IV	4.1(a) & (b)	The Production of Salt from various sources 1969 to 1979	91—92
	4.2	The Location and Extent of Some large Saline Tracts Available for Exploitation of Salt	93
	4.3	Brine Springs in the North-Eastern Region	95
	4.4(a) to (j)	Data of Licensed Salt Works, Categories and Sectors, 1960, 1970 to 1978	96—105
	4.5(a) to (j)	The Production of Salt, 1960, 1970 to 1978 by States, Categories and Sectors	106—110
	4.6	The Total Production of Salt, 1960, 1970 to 1978, by categories	111
	4.7	The Production of Salt in Salt Works of 10 acres or less in Licensed & Non-Licensed Sectors, 1960, 1970 to 1978	111
	4.8	The Average Yield, 1976 to 1978 and Expected Yield of Salt (sectorially)	112
	4.9	The Production, Acreage and Membership of Licensed Cooperative Societies in Different States, 1976 to 1978	114
	4.10	Data of Iodisation Plants—Source, Capacity and Quantity of Salt iodised, 1969 to 1978	114
V	5.1	The Movement of Salt for Edible and Industrial Purposes by Different Modes of Transport 1976 to 1979	115
	5.2	Salt Golahs in Calcutta and Salt stored	115
VI	6.1(a) & (b)	The Cost of Production and Fair Selling Price of Salt in Gujarat	116—117
	6.2(a) & (b)	The Cost of Production and Fair Selling Price of Salt in Tamil Nadu	118—119
	6.3(a) & (b)	The Cost of Production and Fair Selling Price of Salt in Ahdnra Pradesh, Orissa and West Bengal	120—121
	6.4(a) & (b)	The Cost of Production and Fair Selling Price of Salt in Rajasthan	122—123
	6.5(a) & (b)	The Cost of Production and Fair Selling Price of Salt in Maharashtra	124—125
	6.6	Financial Analysis and Working Results of Companies Manufacturing Salt	126
	6.7	The Average Price of Salt-Wholesale and Retail in some Consuming States, 1978	128
	6.8	The Monthly Ex-factory Price of Salt in Important Salt Producing Centres, 1977 to 1979	129
	6.9	Thc Monthly F.O.R. Price of Salt in some Important Producing Centres, 1977 to 1979	132
	6.10	The Monthly Retail Price of Salt in some Important Consuming States, 1977 to 1979	135
VII	7.1	The Cess collected and its Distribution, 1969-70 to 1978-79	139
IX	9.1	The Average Composition of Salt Produced in Various Salt Works	140

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Demand of Salt

1 The domestic demand of salt is expected to increase from 6.70 million tonnes in 1980 to 7.82 million tonnes in 1985 of which 0.24 million tonnes is of iodised salt in the presently notified goitre endemic areas: this could increase to 0.73 million tonnes if all the goitre endemic areas are notified. This domestic demand is expected to increase to 8.84 million tonnes in 1988.

The current level of exports of 0.29 million tonnes is expected to increase to 0.40 million tonnes in 1985 and to 0.45 million tonnes in 1980.

(Chapter III—paragraphs 3.9.2 and 3.9.3)

Projected Deficit

2 While the current level of production is adequate to meet the current year's demand, the projected demand in 1988 will require an increase in the domestic production of 2.3 million tonnes.

(Chapter IV—paragraph 4.20.1)

Potential for Increasing Production

3 The domestic production can be increased by preventing wastage by the washing away by improving warehousing and transportation of almost 1.0 million tonnes,

(Chapter IV—paragraphs 4.1 and 4.20.2)

facilitating the adoption of improved technology which is expected to lead to increase in production of atleast 10% equivalent to 0.70 million tonnes and possibly to 1.40 million tonnes by improving the availability of labour and equipment,

(Chapter IV—paragraphs 4.7 and 4.20.3)

an increase in the utilisation of areas already licensed to the extent of 50% of the unutilised area can lead to an additional production of 3.0 million tonnes,

(Chapter IV—paragraphs 4.8, 4.9 and 4.20.4)

there is potential for further increasing the production of salt by undertaking salt manufacture in approximately 139,790 acres of saline land not yet under salt cultivation and a number of other uptapped sources such as brine springs in the North-Eastern States.

(Chapter IV—paragraphs 4.13 and 4.20.5)

Technological Improvements Feasible

4 The types of the technological improvements that appear attractive in each salt producing region have been summarised in Chapter IV—paragraphs 4.7.1 to 4.7.10.

Provision of Power and Fuels in the Dry Season

5 Increase in the production of salt has been hampered by restrictions imposed by certain State Governments in the supply of power and fuels without taking into account the seasonal character of the industry: the seasonal character of the industry must be recognised and adequate supply of power and fuels must be ensured to salt producers in the dry season.

(Chapter IV—paragraph 4.12)

Insurance of Salt Works

6 The feasibility of formulating a scheme of insurance against salt losses arising from such factors as unseasonal rainfall cyclones and other natural calamities that are clearly outside the control of salt producers, should be studied by the Salt Department with the assistance of the General Insurance Corporation.

(Chapter IV—paragraph 4.14)

Promotion of Salt Manufacture in Salt Deficit Areas Far Away from Salt Surplus Areas

7 The viability of exploiting the sources of salt in areas such as North-Eastern States and West Bengal which are far away from the traditional sources of supply of salt and which suffer from frequent interruptions in the supply of salt due to difficulties in transportation of this essential commodity over long distances, should be studied immediately.

The Geological Survey of India should undertake a rapid industrial survey of these sources of salt and the Salt Department should ensure that these surveys are undertaken in the shortest possible time and the requisite funds are released promptly.

(Chapter IV—paragraphs 4.11, 4.13 and 4.20.5)

Iodised Salt and Iodisation Plants

8 The supply of iodised salt even in the currently notified goitre endemic areas which do not include a number of other goitre endemic areas, is barely half the assessed demand. Poor utilisation of capacity of iodisation plants and their sub-optimal location in relation to the disposition of demand and transportation problems combined with a failure to take measures to ensure that only iodised salt is available in the notified areas, has led to this avoidable situation. In many other countries all edible salt is iodised.

Messrs. Hindustan Salt must immediately obtain specialist advice from the domestic manufacturers of iodisation plants to rectify the deficiencies in its iodisation plants so as to achieve capacity operation rapidly.

There should be no restriction on the erection of iodisation plants in the private, joint or public sector nor is there any need to be unduly strict in regard to the choice of the locations or technology.

The subsidy available from the Ministry of Health for the production of iodised salt can be confined to the production from plants owned by the Central and State Governments.

The State Civil Supplies Officers in the notified goitre endemic areas should be provided with standard sample testing kits to be developed by the CS&MCRI to ensure that only iodised salt is received and sold in the market. These officers should also be trained in the use of the simple submersion process and small standard submersion process units (that should be developed by the CS&MCRI) to assist in converting non-iodised salt seized in the market to iodised salt.

The despatch of iodised salt from Calcutta to the North Eastern States should be expedited by placing this movement immediately in Category B.

(Chapter IV—paragraphs 4.16 and 4.20.7)

Fortified Salt

9 The Central and State Public Sector plants should actively promote the production and sale of fortified salts.

(Chapter IV—paragraph 4.17)

Imported Salt

10 Imported rock salt should be used only for Ayurvedic and Unani medicines.

(Chapter IV—paragraph 4.18)

Exports

11 There could be large and remunerative exports of salt. Studies in this regard have been tardy. The State Trading Corporation in consultation with the Salt Department and the States of Gujarat and Tamil Nadu should immediately undertake studies on how viable exports can be increased rapidly and ensure that facilities such as increased rate of unloading and loading of salt, provision of barges, telecommunication facilities in exporting ports, are provided promptly.

(Chapter IV—paragraph 4.19)

Movement of Salt from Salt Works to Rail Heads

12 Construction and maintenance of roads must be accelerated to facilitate the movement of salt from salt works to rail heads.

(Chapter V—paragraph 5.1)

Movement of Salt from Salt Works to Ports

13 An adequate number of barges and better communication and navigation facilities must be provided to improve the movement of salt from producers in the West Coast and the Salt Department and the State Governments concerned must take effective steps to provide these facilities.

(Chapter V—paragraph 5.2)

Movement of Salt from Salt Works and from Rail Sidings

14 Significant cost savings can be effected through rail movement by the provision of rail sidings wherever these are established as cost effective. The Salt Department and the railway authorities must jointly prepare detailed studies and surveys so that an effective programme is formulated and implemented.

(Chapter V—paragraph 5.3)

Movement of Loose Salt

15 Movement of loose salt for edible purposes by road in certain circumstances facilitate transportation and reduce costs. Therefore, it may be permitted, but the Salt Department must specify the precautions that must be taken in such matters as wrapping in polyethylene, tarpaulins etc. to ensure that no contamination takes place by external dust. Consequential modifications should be made in Salt Manuals.

(Chapter V—paragraph 5.4)

Rail Movement of Salt

16 Serious shortfalls have taken place in the planned rail movement of salt and specially serious in this is the very large shortfall in the movement of iodised salt. Chapter V—paragraph 5.6. Cost effective detailed plans for the movement of salt by rail, road, coastal shipping and river craft have yet to be formulated with some degree of precision and the formulation of such a study and the preparation of a proper plan, are urgent.

(Chapter V—paragraph 5.8)

Measures to Improve Rail Movement

17 Railway wagons must be allotted directly to the State Governments in accordance with their assessed requirements in Category B and Category C with their nominated wholesalers and distributors acting on their behalf of these States so desire. But no change in the destination booked in accordance with the instructions of the State Government should be accepted by the railway authorities without the specific authorisation of the State Government.

Till such time that all rail movement of iodised salt from its sources of supply is adequate to meet the full requirement or till further iodisation plants are established the movement of iodised salt from Calcutta should be placed in Category B.

(Chapter V—paragraph 5.10.1)

Rail wagons for Category D and E traffic must be allotted only after fully satisfactory allocations are made for Category B and C movements (even in respect of after hours or holiday loadings).

(Chapter V—paragraph 5.10.2)

The Salt Department and the Railway authorities in consultation with the State Governments should jointly work out a detailed programme of the movement of salt (both iodised and non-iodised salt) indicating :

additional rail sidings that are feasible and will facilitate the movement of salt from the salt works ;

nomination of loading stations that will facilitate the quick movement of salt and result in overall cost savings to consumers as also the additional facilities (platforms etc.) that must be provided in such loading stations ;

the routes on which full or partial rake movements are acceptable and the facilities for this that must be provided in the identified loading stations ;

the feasibility of utilising open wagons suitably covered by tarpaulins in fair weather months to supplement the transportation of salt in covered wagons ;

transhipment points that cannot be avoided and facilities that will have to be provided so that transhipment can proceed smoothly ;

assessment of wagons required for the movement of salt from each salt producing area to meet the projected demand atleast five years ahead ;

a detailed movement plan for each year for each zone (and for the next five years) subdivided into the plan for each quarter (taking into account the need to create stocks in centres of consumption to cover likely shortfalls in railway movement arising from movement restrictions on certain sections imposed in certain months) and meetings held every quarter to which State Government representatives must be invited to review the progress achieved in meeting the previous quarter's plan and the adjustments that need to be made in the plan of the following quarter ;

a review of zonal plans and achievements atleast once every six months with the Railway Board to identify deficiencies so that the Railway Board can find suitable solutions.

The Salt Department and the Railway authorities must constantly keep under review the possibility of relaxing (in due course removing) restrictions on the movement of salt by rail from the salt producing areas in the South to West Bengal and the North-Eastern States where there appears to be a preference for the types of salt available from these sources.

(Chapter V—paragraphs 5.10.3 and 5.10.4)

Measures to Improve Coastal Movement of Salt by Ships

18 Bunching of vessels' arrival in Calcutta must be avoided by closer coordination with the Directorate General of Shipping. Storage in Haldia Port and distribution of salt from there should be encouraged. Direct jetty loading of salt into coastal vessels should be arranged.

(Chapter V—paragraph 5.11)

Present System of Price Control

19 The present control on prices is restricted to the quantity imported in Calcutta by sea. This has averaged about 222,000 tonnes/year and is equivalent to about 3% of the total domestic consumption of the country. The price of this salt at source is 11.2% to 12.8% of the delivered cost of salt in Calcutta. The price actually charged in the last three years has substantially exceeded the controlled price and no legal action has been taken against the salt manufacturers who have continued to controvene the Essential Commodities Act, 1955 which notified the controlled price of this salt in 1977.

(Chapter VI—paragraphs 6.1 and 6.5)

Study of Costs

20 There are large variations in the cost of production of salt within each salt producing region and between regions arising from such factors as the source of brine, duration of the season, yield of salt from brine, which are either largely or wholly outside the control of salt producers.

The cost of production in salt works of 100 acres tends to be high because of the higher cess paid and high wages : the cost of production of cooperative salt works is also high because of high wages.

In the circumstances, it is found infeasible to fix a fair price or fair prices for the salt manufactured in each salt producing area or sub-area leave alone for each of the several thousand individual salt producers.

(Chapter VI—paragraphs 6.2 and 6.3)

Present Sales Realisation

21 There is considerable variation in the sales realisation. To an extent, this is found to be due to the poor financial capacity of certain salt works to hold substantial stocks as a result, of which these salt works have to sell their production quickly thereby realising lower prices. Difficulties in regard to transportation also affect the sales realisation of salt works.

(Chapter VI—paragraph 6.4)

Margin between Ex-works and F.O.R. Price

22 Analyses of the price build-up show that the margin between ex-works prices and F.O.R. prices is excessive. There is evidence that this results from the high premium on the allotment of rail wagons.

(Chapter VI—paragraph 6.6)

Wholesale and Retail Prices

23 Although many State Governments have complained of the erratic movement in wholesale and retail price in their consuming centres, few State Governments keep proper records of these movements. From such data as the Committee was able to collect, the margin between low and high retail prices is high in the North Eastern States and Bihar. The general trend in the movement of these prices indicates that prices start to increase just before the onset of the monsoon which hampers smooth rail transportation:

large fluctuations leading to excessive prices exist in areas to which the transportation of salt is difficult.

(Chapter VI—paragraph 6.7)

24 An analysis of wholesale and retail margins in these States shows that these are clearly excessive and in relation to these the excess margin realised in ex-works sales by salt manufacturers is insignificant.

(Chapter VI—paragraph 6.9)

Excessive Margins between Ex-Works and F.O.R. Prices and in Wholesale and Retail Prices

25 Thus, the analyses carried out by the Committee indicate that excessive margins exist in the ex-Works-F.O.R. price build up and in wholesale and retail prices. These excessive margins can be curbed to reach fair levels by:

the Salt Department initiating a price surveillance system to advise all State Governments the fair price at which purchases can be made from different production areas and actively assist the State Government in purchasing salt at fair prices. The Salt Department must be specially vigilant to ensure that no form of cartelisation takes place and that salt producers do not take advantage of temporary situations of difficulty arising from shortage of wagons and the lack of adequate stocks in consuming areas;

allotting rail wagons only to the State Governments for the movement of salt purchased by the State Governments or the wholesalers so authorised by the State Governments and not permitting any change in the destination of these wagons nominated by the State Governments without their prior approval;

much greater vigilance by the State Governments in scrutinising purchase prices and margins charged by the wholesalers selected by them (and in the selection of wholesalers on the basis of their past performance);

the State Governments stipulating the minimum level of stocks that wholesalers must maintain in nominated consuming centres: this minimum level must be fixed in consultation with the Salt Department and the railway authorities so that they take into account the problems affecting the transportation of salt from producing areas to the consuming centres. The analysis carried out by the Committee indicates that this is specially important in East and North East Bihar, all the North Eastern States and West Bengal and that the level of stocks that should be maintained in the key consuming centres in these States should be equivalent to four months consumption;

contractual arrangements between the State Governments and the wholesalers/distributors selected by them that the latter will ensure that retail price will not exceed the ceiling figures mutually agreed as reasonable for the various consuming centres combined with much greater surveillance by the State Governments that wholesale and retail prices continue to be reasonable and releases from stocks are made promptly to check unreasonable price increases.

(Chapter VI—paragraphs 6.10, 6.11 and 6.12)

Differential Freight on Movement of Salt to West Bengal

26 Only West Bengal receives edible salt in excess of 25 railway wagons per day by coastal shipping from the West Coast and Tuticorin area: while this may be the most cost effective mode of transport in national economic terms, it imposes an unreasonable burden of about Rs. 73 per tonne of salt on the consumers in Calcutta and nearly areas vis-a-vis consumers in other States. Therefore, the Committee recommends that this freight differential on salt for edible consumption should be compensated by corresponding payments from out of the Salt Cess Fund or other such funds like the coal Surcharge Fund, provided, however, there is the utmost vigilance on the part of the State Government to ensure that the benefit of this in the form of a reduction in the selling price is actually passed on to the consumers and not permitted to be absorbed by an increase in the effective wholesale and retail margins realised by traders.

(Chapter VI—paragraph 6.13)

Freight Equalisation

27 The consumption of salt forms 0.47% of the total per capita consumption expenditure. For a variety of reasons, the market for salt is far from perfect, the present margins (ex-works to F.O.R., wholesale and retail) excessive, stable fair consumer prices yet to be achieved and cost-effective transportation arrangements yet to be streamdined. In these circumstances and given the fact that there are about 4,000 salt producers and that their cost of production varies a great deal within each salt producing region and between regions, the Committee does not consider that a freight equalisation scheme for salt is feasible and likely to lead to any significant advantage to consumers at this stage.

(Chapter VI—paragraph 6.14)

Cost of Collection of Cess and Alternatives

28.1. The total annual cost of administration consisting of the licensing of salt works and detailed and continuous check on the release of salt is 55% of the total cess collected which was Rs. 1.33 crores in 1978-79. The total annual collection is so small, the cost of administration so heavy and the controversies in this so many, that the Committee considers that the quantum of cess collected is not commensurate with the costs anl total effort in its collection and therefore recommends that it should be removed altogether. If, however, the Government considers it is essential that the cost of development activities must continue to be met from revenues that must be raised from the operation of the salt industry, then much simpler methods of raising these funds are feasible. After examining several of these, the Committee considers that the simplest method will be to levy a cess of about Rs. 5 to Rs. 10 per tonne on the salt consumed by the manufacturers of caustic soda and soda ash instead of charging and collecting the cess from the several thousand widely scattered salt producers.

28.2 The removal of advantages available currently to certain classes of small producers and cooperatives through the partial or full exemption from the salt cess resulting from the above recommendations, can be compensated by the imposition of lower and favourable land revenue and assignment fees, by extending loans on softer terms and grants for labour welfare for which salt works in the non-licensed sector are not at present eligible.

(Chapter VII—paragraphs 7.4.2 and 7.4.3)

(Shree S.C. Aggarwal dissents from the above recommendations)

Salt Cess Act and Rules

29 The above recommendations lead to very major revisions in the Salt Cess Act and Rules.

(Chapter VII—paragraph 7.4.4)

Collection of Land Revenue and Protection of Central Lands

30 Land revenue on central lands used for the manufacture of salt should be collected by the State Governments and credited to the Salt Department and no separate staff of the Salt Department need be utilised for this task: the attention of the staff of the Salt Department can than be concentrated on the much more important tasks of promoting the adoption of improved technology, reduction in costs, speedy movement etc.

Such vacant land as can be utilised for the production of salt must be so used immediately: the balance should be offered to other Central Government departments and the State Governments on reasonable terms and the land that is not required by these should then be auctioned.

(Chapter VII—paragraph 7.5)

Licensing

31.1 With very very rare exception, all the applications received for the manufacture of salt have been approved by the Salt Department and licenses issued. The Committee considers that delays and vexatious correspondence in licensing can be eliminated by delegating authority to the State Governments to issue licences on behalf of the Salt Department in accordance with guidelines that the Salt Department should formulate: these guidelines must include stipulations regarding the rapid utilisation of the area licensed, proper layout, flow and storage of bitterns and also that all licensed manufacturers must employ supervisors properly trained in the manufacture of salt. State Governments must constitute proper Licensing Committees which must include the Assistant Salt Commissioner.

(Chapter VII—paragraph 7.6)

(Shree S. C. Aggarwal, Shree K. L. Sahni and Shree S. K. Sarkar dissent from this recommendation.)

31.2 The period of licence be extended to 40 years with stipulation to ensure that the entire licensed area is worked every year strictly; and a uniform and simple procedure be adopted in all the States for transfer of licence.

(Chapter VII—paragraphs 7.8.1 & 7.8.2)

Development—Labour Welfare for Development

32 The total expenditure on these was negligible until 1976-77; but has increased in the last three years to reach Rs. 4.6 million in 1978-79. The Committee has received complaints of the tardy manner in which schemes are examined, processed, approved and implemented. The Committee considers that the State Governments and their enterprises (such as the State Industrial Development and Finance Corporation) are better equipped to scrutinise schemes and grant approvals quickly and, therefore, it recommends that all programmes of this type should be left wholly to the State Governments to carry out. The Salt Department should assist the State Governments in working out time phased comprehensive schemes and then monitor their implementation. Suitable funds should be made available under the Central Plan to the State Governments and their enterprises to discharge these responsibilities.

(Chapter VII—paragraph 7.7)

Code of Principles

33 In case, the Government does not accept the abolition of cess on salt, the code that regulates the grant of financial assistance out of cess proceeds, be amended, providing enhanced powers to sanction works at various levels.

(Chapter VII—paragraph 7.9)

Research and Development

34 No system has so far been developed to measure the progress in the application of improved technology or collect data in this regard. The Salt Department must take the lead in coordinating the formulation of an intensive and extensive programme of technological development in this industry, in consultation with the CS&MCRI, the Salt producing State Governments and well established consultancy design organisations. The Salt Department must accept a coordinating and overseeing role with the salt producing State Governments providing an active field extension service (initially by the loan of the staff of the Salt Department to the State Governments). The Committee has made a number of suggestions for accelerating technological progress.

(Chapter VIII—paragraphs 8.1 to 8.6)

Specifications and Standards

35 Improvement in standards is highly desirable and the programme of steady improvement now drawn up by the Ministry of Health must be implemented. Proven technology to achieve this is available and must be disseminated vigorously by State Government salt field extension services, supported by special training courses at various levels, extensive testing by enlisting the assistance of analytical laboratories in salt works to test samples of salt produced in other salt works etc. These efforts should be linked with the State Governments purchasing salt of progressively

improving specifications as programmed by the Ministry of Health.

(Chapter IX—paragraphs 9.1 to 9.5)

The Role of the Public Sector

36 The production of the central public enterprise, Hindustan Salts, is equivalent to about 8% of the total domestic consumption of edible salt: the potential production of State public enterprises will be somewhat more than this when their works are completed in the near future. This large production of the Centre and State public enterprises can help maintain a degree of price stability and survillance, assist salt deficit States in procuring salt at a fair and stable price and possibly assist in mutually beneficial long term supply and distribution arrangements specially of iodised and fortified salts.

In close cooperation with the CS&MCRI, these enterprises can assist in training a large number of salt workers in improved techniques of salt production.

Each of the major public sector salt works should promote the recovery and collection of bitterns from all the salt works within an economical distance and establish plants to recover by-products such as bromine, potassium chloride, sodium sulphate, magnesium chloride, magnesium sulphate etc.

The technological progress of Central and State public sector plants can be facilitated by much closer association between these and scientists, technologists, design consultants and also possibly through the institutional consultancy of the CS&MCRI.

(Chapter X—paragraphs 10.1 to 10.4)

Labour and Employment

37 The problems affecting the conditions of workers are within the purview of the State Governments. The particular problem of workers in the salt industry can be dealt with more effectively by the State Governments appointing special labour welfare officers for the workers in this industry, located in the salt producing regions. Health hazards should be removed by the State Governments stipulating the facilities that every salt manufacturer has to provide as a condition of his being permitted to lease land for the manufacture of salt. The Salt Department should keep closely in touch with the progress.

(Chapter XI—paragraphs 11.1 and 11.2)

Packing Sizes

38 The ceiling on packing size should be reduced to 55 Kgs. within three years, in conformity with the Committee on Conventions (1977) and to accord with the ceiling packing sizes for most other industrial products such as cement.

(Chapter XI—paragraph 11.3)

Recovery of By-Products

39 The recovery of valuable by-products such as bromine, potassium and magnesium salts should be accelerated and the Committee suggests that this be exempted from the Industrial Development and Regulation Act.

(Chapter XII)

Cooperatives

40 Although the production of cooperative salt works has increased to reach 0.90 million tonnes/year it is still below the production of 1.25 million tonnes/year achieved in the unlicensed sector. The Committee emphasises the importance of greatly improving the viability of cooperative works through the extension of concessional land revenue, assignment fees, soft loans and special technological assistance so that small salt producers can take benefit by merging their works with cooperatives that are able to achieve low costs of production and by-products recovery. This should be an important objective of the Salt Department.

(Chapter XIII—paragraph 13.1 and 13.2)

The Revised Functions and Organisation of the Salt Department

41.1 With the recommendations in the above paragraphs, the main functions of the Salt Department will be in production and price surveillance; streamlining storage and distribution; promotion and technological development; assistance in investment planning and monitoring the implementation of schemes; facilitating the rapid expansion of labour welfare measures and reviewing these in each salt producing regions: supporting studies and measures to accelerate exports; establishment of future quality standards and to assist in their achievement; provision of meteorological services and in promoting the formation of cooperatives.

The Annual Report of the Salt Department should contain detailed data on the progress in these areas. The Salt Department should also take the initiative in publishing a directory of design consultants in this industry.

(Chapter XIV—paragraph 14.1.1 to 14.1.7)

41.2 The Salt Department should consist of five main divisions for production, storage and distribution, technological development, labour welfare and economics and statistics, in the head office, directed by officers of the rank of Deputy or Assistant Salt Commissioners and regional offices in the major salt supplying States of Gajarat, Tamil Nadu, Rajasthan and possibly Andhra (where Divisional Superintendents of the Railways are located) directed by officers of the rank of Assistant Salt Commissioners to help streamline the distribution and storage of salt: in these latter regional offices, the assistance of railway transportation officers should be sought, at any rate initially, to train the officers of the Salt Department in the new responsibilities of streamlining distribution. A regional office should also be maintained in the North Eastern area to assist these States in ensuring the ready availability of iodised salt.

(Chapter XIV—paragraph 14.2)

41.3 A substantial surplus of staff is likely to arise in Group B, Group C and Group D. This surplus should be determined with the assistance of the Staff Inspection Unit.

(Chapter XIV—paragraphs 14.2 and 14.3)

41.4 The staff declared surplus should be provided remunerative employment in the greatly enlarged responsibilities that the State Governments will now have to undertake, by preferentially licensing to it or to cooperatives that the surplus staff should be encouraged to form, new salt works and by assisting it in setting up design and consultancy organisations.

(Chapter XIV—paragraph 14.3)

41.5 The assurances in regard to salary, allowances and other amenities, given to the staff of the Salt Department when this Department was formed in 1947, have yet to be fulfilled. The complaints received by the Committee in regard to pay scales and amenities appear legitimate and the Committee suggests that the term of reference of the study that it suggests that the Staff Inspection Unit should undertake should include this important issue.

(Chapter XIV—paragraph 14.4)

सत्यमेव जयते

CHAPTER I—THE SCOPE OF THE STUDY AND THE METHOD ADOPTED

Scope of Study

1.1 Through the Government of India Resolution Number 02012/4/76—Salt dated 30th November, 1978, the Department of Industrial Development in the Ministry of Industry appointed a High Level Committee under the Chairmanship of Smt. Abha Maiti, Minister of State for Industry, with nine official and four non-official members to carry out a comprehensive review of the salt industry with the following terms of reference :—

- (i) to assess the demand of salt for human consumption, industrial purposes and exports during the next ten year period;
- (ii) to assess the potential for production of salt and to recommend measures to maximise production;
- (iii) to make a study of costs and prices and recommend fixation of fair ex-works prices of salt for different regions;
- (iv) to review the present zonal scheme for distribution of salt for human consumption (including iodised salt and with special reference to movement of salt by sea to West Bengal);
- (v) to review the present arrangements for public storage and retail distribution of salt and to recommend improvements;
- (vi) to consider the feasibility of freight equalisation for salt;
- (vii) to review the operation of the Salt Cess Act, the Salt Cess Rules and the Code of Principles for cess assistance by way of loans and grants in order to ensure equitable benefits to all the salt producing regions;
- (viii) to review other levles on salt production in different States in order to achieve uniformity to the extent possible;
- (ix) to review the system of licensing of salt works including the present exemption upto the limit of 10 acres;
- (x) to review the functioning of cooperative salt works and to suggest measures for promoting the formation of cooperatives in the field;
- (xi) to review labour and employment situation in the salt industry and propose measures for fixation of wages and labour welfare;
- (xii) to review and re-define the role of public sector in the salt industry;
- (xiii) to recommend measures for better quality control and upgrading the standard of indigenous salt to international standards;
- (xiv) to review the progress of research and development of model salt farms including the operation of marine salt farms, research stations and regional quality control laboratories;
- (xv) to consider the need for import of salt and to recommended measures of export promotion;
- (xvi) to review the progress of salt based chemicals and recovery of by products from bitterns and propose measures for encouraging the establishment of marine chemical industry;
- (xvii) to review the working of Salt Department and examine the feasibility of decenteralisation of salt industry and
- (xviii) to consider any other matter proposed by the salt industry or the State Governments and to make appropriate recommendations thereon.

A copy of the Resolution is placed at Annexure—I.

1.2 Several changes took place in the Membership of the Committee :—

Shri A. Ramji was replaced by Shri K. Neelakantan, Addl. Director (Traffic and Transporation), Railway Board, New Delhi.

Shri Rasiklal Mehta, Sanrashtra Majoor Mahajan Sangh, Rajkot was nominated a member of the Committee through the issue of the Government Resolution Number 02012/4/76—Salt dated 21st April, 1979.

Shri I. Mahadevan ceased to be a member of the Committee on 1st July, 1979 on relinquishing charge as Joint Secretary in the Ministry of Industry and was replaced by Shri M. Bahl, Joint Secretary, Department of Industrial Development, Ministry of Industry, New Delhi.

Shri L. Kumar, Chairman of the B.I.C.P. was appointed as the Chairman of the Committee in place of Smt. Abha Maiti and

Shri S. K. Sarkar, Joint Secretary, replaced Shri M. Bahl through the Government Resolution No. 02012/4/76—Salt dated 29th February, 1980.

1.3 The Government Resolution stipulated that the Committee should submit its Report within a period of six months. The Committee discussed this mater at its first meeting held on December 30, 1978 and felt that this ime schedule would not be adequate for completing its study covering all the terms of reference. Therefore, the Ministry of Industry extended the period to June 30th, 1980.

1.4 The Committee held further meetings on February 1, 1979, February 16, 1979, June 8, 1979, July 20, 1979, September 17, 1979, March 3 & March 4, 1980, & May 13 & May 14, 1980.

The Method Adopted

1.5 A detailed questionnaire was issued in January, 1979 to nearly 4000 licensed salt manufacturers seeking data on the economic, technical and cost aspects with the request that such data should reach the Bureau of Industrial Costs and Prices within three weeks. Copies of the questionnaire were also sent to all the associations representing licensed salt manufacturers.

Specific questionnaires were sent to the following interests seeking data on issues with which they were specifically concerned, as indicated below :—

Industrial salt consumers—rated capacity, demand and specifications of salt.

State Governments and Union Territories—current demand, projected demand of salt, problem of supply and distribution, price, labour problems etc.

Salt Department—general administration, enactment of rules and regulations and their implementation, the staffing pattern and other aspects.

Research Institutes—research and development in salt and its by-products.

The State Trading Corporation—imports and exports of salt.

The Railway Board—transport of salt by rail and problems affecting this.

The Directorate General of Shipping and Transport—problems of movement of salt by ships engaged in coastal trade.

Shipping companies—problems of movement of salt by ships engaged in coastal trade.

Exporters of salt—projected exports and problems in securing export markets.

Traders of salt—supply and distribution.

Non-licensed manufacturers—manufacture of salt, its distribution and technological problems.

Labour unions representing workmen in the salt industry—labour unions, wages paid, amenities provided etc.

Users of bitterns—recovery of by-products and problems faced in processing these by-products to manufacture a variety of chemicals.

1.6 In response to the wishes of the State Governments, some members of the Committee visited Gujarat (Ahmedabad, Jamnagar, Mithapur and Bhavnagar), Maharashtra (Bombay), Tamil Nadu (Madras, Veppalodai, Tuticorin, Kayalpatnam and Kanyakumari), Rajasthan (Sambhar Lake and Jaipur) Orissa (Bhubaneswar), West Bengal (Calcutta), Assam (Gauhati), Meghalaya (Shillong), Nagaland (Kohima) and Manipur (Imphal) and held discussions with the Ministers and officials of the State Governments; they also met associations representing salt distributors, users, workers and visited salt works. Some members of the Committee met officials of the State Governments of Arunchal Pradesh and Mizoram in Gauhati and Imphal respectively and also met representatives of the State and Union Territories that it was unable to visit in a meeting held in New Delhi on July 19, 1979. The Committee also had meetings with the members of the Central Advisory Board for Salt on June 7, 1979, Officers of the Salt Department on July 19, and the Officers of the Hindustan Salts Limited on August 11, 1979.

1.7 The Committee wishes to acknowledge the great assistance rendered to it by the Salt Commissioner and all members of his staff.

Shri R. Prakash, Assistant Salt Commissioner, was specially deputed to assist the Committee and his assistance was invaluable.

सत्यमेव जयते

CHAPTER II—GENERAL

2.1 The importance of salt in the national economy as an article of daily necessity and as a vital industrial raw material is so well established that it needs little comment except to note that there still continues to be some lack of appreciation of the number of valuable by-products which can be recovered with benefit during the course of its manufacture.

2.2 Except in the three immediate years after independence when the major sources of supply of salt in undivided India, in Sind (marine salt works) and rock salt deposits of Khewara, Warcha and Kalabagh and salt quarries of Karak, Bhandurkeel and Jatta in the North West Frontier Province area, were placed in Pakistan, leaving a domestic production of only 1.9 million tonnes to meet the estimated domestic demand of 2.1 million tonnes, the country has not suffered any serious shortage on account of a shortfall in the production of salt. However, local shortages have arisen due to deficiencies in transportation and distribution.

The immediate problems of impending shortage in the year after Independence, were studied in 1947 by a Committee chaired by Shri H. M. Patel (the Patel Committee) which recommended several measures to increase the output quickly as well as over a longer period of 8 years, based on a target of complete self-sufficiency for which the Committee felt that ample resources existed, to improve the distribution which included the recommendation that all wholesalers and stockists of salt should be required to carry a stock equal to their average sales for three months to provide a satisfactory working reserve against emergencies.

In pursuance of the recommendations of the Patel Committee, the Government appointed a Salt Experts Committee in 1948, which submitted its report in 1950 and recommended measures that should be taken to increase production, improve quality and reduce costs. A summary of the Committee's recommendations is placed at Annexure 2.1.

In January, 1958, the Government of India appointed a Committee chaired by Shri Manubhai Shah whose terms of reference included an assessment of the production of large, medium and small scale manufacturers of salt, a review of the concession allowed to salt manufacturers, an assessment of the progress of cooperatives in the production of salt, an examination of the system of quality control and a study of the feasibility of applying statutory provisions such as those in the Minimum Wages Act, to assist the labour employed in the salt industry. The Committee submitted its report labour in the year and a summary of its recommendations is placed at Annexure—2.2.

2.3 The domestic production of salt increased from 1.9 million tonnes in 1947 to 2.66 million tonnes in 1950 at which time it fully met the domestic demand. It has continued to increase to reach 7.04 million tonnes in 1979.

The sources of salt in India are coastal (sea), inland and lake. There is also production of rock salt in Mandi (Himachal Pradesh) but this production is very small and the quality very inferior. The production of salt from each of these sources has been as follows :—

TABLE 2.3—*Production of salt in India from each source*

(all figures in '000 tonnes)
(figures in bracket represent % of total)

Year	Sea	Inland	Lake	Rock	Total
1950	1858(69.80)	466(17.51)	337(12.66)	1(0.03)	2662
1960	2600(75.67)	587(17.08)	245(7.13)	4(0.12)	3436
1970	4107(73.50)	1238(22.15)	239(4.28)	4(0.07)	5588
1974	4555(77.03)	1188(20.09)	165(2.79)	5(0.09)	5913
1975	4725(80.87)	1063(18.19)	52(0.89)	3(0.05)	5843
1976	3376(82.83)	696(17.08)	No production	4(0.09)	4076
1977	4233(79.43)	1092(20.49)	No production	4(0.08)	5329
1978	4870(72.75)	1810(27.04)	10(0.15)	4(0.06)	6694
1979	4525(64.30)	2449(34.80)	59(0.84)	4(0.06)	7037

All the salt manufactured domestically is based on the use of solar energy as the prime source of evaporation.

2.4 The major types of salt produced and marketed are as follows :

Human consumption—uncrushed (crystal) salt, crushed salt, refined salt, table salt, dairy salt and iodised salt.

Animal consumption—cattle—lick salt.

Industrial consumption—industrial grade salt.

International Position

2.5 India is the sixth largetst producer of salt in the world. The production of the twelve largest salt producing countries is as follows :—

TABLE 2.5—*Production of salt in Major Producing Countries of the World*

(all figures in '000 tonnes)

Name of the country	1947	1950	1960	1970	1975	1976	1977	Annual compound rate of growth in the last ten years
U.S.A.	14564	15086	23114	41636	37222	40091	38949	010%
China	4346	4346	12900	15600	29900	30000	30000	8.5%
U.S.S.R.	4350	5160	6703	12428	14300	14219	14317	3%
Federal Republic of Germany	1805	3280	3969	10511	9500	11602	12556	6%
United Kingdom	3170	4313	5860	9188	7630	8006	8202	1.4%
India	1930	2662	3436	5588	5843	4076*	5329*	1.8%
France	2196	2664	3836	5664	5347	5575	5772	1.8%
Canada	661	779	3007	4862	5123	5994	5933	2.5%
Australia	168	277	471	2054	5057	5350	5023	21.5%
Mexico	147	147	743	4063	5354	4391	4884	5.3%
Poland	339	770	1946	2904	3524	3818	4357	6.8%
Itlay	1672	1804	2576	4359	4167	3844	4000	0.8%

*decrease due to unprecedented floods :

India's production in 1978—6,693,000 tonnes
1979—7,037,000 tonnes

2.6 The sources of production of salt in these twelve countries are as follows :—

U.S.A.	sea water, salt lakes, natural brine, rock salt deposits.
U.S.S.R.	rock salt deposits and salt lakes.
West Germany	rock salt deposits and salt springs.
United Kingdom	rock salt deposits.
India	sea water, salt lake, rock salt and sub-soil brine.
France	sea water, salt lakes and sub-soil brine.
Canada	sea water, underground and bedded salt deposits, sub-surface water.
Australia	sea water, salt lakes and rock salt deposits.
Mexico	sea water, rock salt deposits.
Poland	salt mines and springs.
Italy	sea water, rock salt deposits and salt springs.

2.7 Most of the large manufacturers market a large number of grades of salt. In the U.S.A. Canada and the Federal Republic of Germany about 500 varieties of food grade salt including free flowing table salt and pure vacuum dried salt, are marketed. Industries are supplied salt in bulk.

CHAPTER III—DEMAND OF SALT

General

3.1 The major sectors of the domestic demand of salt continue to be human and animal consumption and in the manufacture of caustic soda and soda ash. A large number of other industries also consume salt in curing fish, canning, tanning, vegetable oil, soap, ore-dressing and refrigeration.

Human and Animal Consumption

3.2 No data are available of the consumption of salt by human beings and by livestock separately. The aggregate per capita consumption, ignoring changes in inventories on which no data are available, has increased gradually from 5.31 Kgs. in 1969 to 6.15 Kgs. in 1978 as shown in the following table :—

TABLE 3.2—*Per capita consumption of salt in India*

Year	Population in million	Total supply of salt for human & live-stock consumption (million tonnes)	Annual per capita consumption in Kgs.
1969	525.20	2.79	5.31
1970	532.48	2.99	5.62
1971	547.14	3.29	6.01
1972	559.42	3.40	6.07
1973	571.76	3.06	5.35
1974	584.15	3.27	5.60
1975	596.60	3.29	5.51
1976	609.09	3.33	5.47
1977	621.63	3.71	5.97
1978	634.19	3.90	6.15

3.3 A diet survey conducted in 1953 by the National Institute of Nutrition of the Indian Council of Medical Research indicated that the per capita consumption of salt was 18 gms. per day. A subsequent study among some communities in Hyderabad indicated that the daily salt intake varies between 12 grams and 20 grams per day depending on the socio-economic condition. On the basis of such studies, the National Institute of Nutrition has assessed that the annual per capita consumption varies between 3.5 to 7.5 kilograms and the average is 5.5 kilograms. So far similar norms for consumption for livestock have not been assessed scientifically but the general assessment of the Salt Department is that the demand of salt of livestock will be reasonably covered through the provision of about 10% of the estimate for human consumption. Therefore, in regard to the domestic demand of salt, the Salt Department proceeds on the basis of an overall norm of per capita consumption of 6 kgs. per year. In the circumstances, the Committee accepts this basis for projecting the total demand of salt in these sectors-human & animal consumption.

Incidence of Goitre and Demand of Iodised Salt

3.4 The following areas have been identified as goitre prone and brought under the National Goitre Control Scheme which was launched in 1962 :—

Himachal Pradesh—all districts.

Chandigarh—entire area.

Haryana—the district of Ambala.

Punjab—the districts of Gurdaspur, Hoshiarpur and Rupar.

Uttar Pradesh—the districts of Uttar Kashi, Almora, Chamoli, Pithoragarh, Garhwal, Dehradun, Tehri-Garhwal, Bijnor and Nainital.

Jammu & Kashmir—all districts.

Bihar—the districts of Champaran.

West Bengal—the districts of Darjeeling, Jalpaiguri, West Dinajpur, Malda ond Cooch-Behar.

Manipur—all districts.

Nagaland—all districts.

Arunachal Pradesh—all districts.

3.5 The incidence of goitre has also been noticed in the following further areas but these have yet to be included in the National Goitre Control Scheme :—

Assam—all districts.

Tripura—all districts.

Meghalaya—all districts.

Mizoram—all districts.

Uttar Pradesh—the districts of Deoria, Rampur, Khari, Bareilly, Pilibhit & Saharanpur.

Bihar—all districts in North Bihar and the districts of Palamau, Ranchi and Santhal Parganas.

Maharashtra—the district of Aurangabad.

Gujarat—the district of Bharuch.

Madhya Pradesh—the districts of Sidhi and Shahadol.

Sikkim—all districts.

3.6 The most convenient method of preventing goitre is found to be to administer iodine with salt and the annual requirement of iodised salt for the areas listed in paragraphs 3.4 and 3.5 is as follows :—

TABLE 3.6—*Demand of Iodised salt*

(all figures in '000 tonnes)

I. Areas already brought under the National Goitre Contol Scheme	
Himachal Pradesh	24.0
Chandigarh	2.1
Haryana (Ambala district)	8.0
Punjab (Gurdaspur, Hoshiarpur and Rupar districts)	20.0
Uttar Pradesh (Almora, Pithoragarh, Dehra Dun, Bijnore, Chamoli, Garhwal, Nanital Tehri-Garhwal, Uttar Kashi districts) . . .	37.5
Jammu & Kashmir	34.0
Bihar (Champaran district)	30.0
West Bengal (Darjeeling, Jalpaiguri, West Dinajpur, Cooch Behar and Malda districts) . .	51.4
Manipur	8.5
Nagaland	4.2
Arunachal Pradesh	3.7
Sub-Total	223.4
II. Areas still to be brought under the National Goitre Control Schemes :—	
Assam	132.6
Tripura	13.3
Meghalaya	7.7
Mizoram	2.7
Uttar Pradesh (Dooria, Kheri, Bareilly, Rampur, Pilibhit, and Shahjahanpur districts) . .	62.7
Bihar (North) excluding Champaran district) .	151.0
Bihar (South) (Ranchi, Palamau, Santhal Pargana districts)	50.7
Maharashtra (Aurangabad district) . . .	13.8
Gujarat (Bharuch district)	7.7
Madhya Pradesh (Shahdol & Sidhi districts) .	12.5
Sikkim	1.9
Sub-Total .	456.6
Grand Total .	680.0

In developed countries, all salt for human consumption contains iodine.

Consumption for the Manufacture of Caustic Soda and Soda Ash

3.7 The two major chemicals whose manufacture is based on salt are caustic soda and soda ash and the consumption of salt in these is indicated in the following table :—

TABLE 3.7—*Consumption of salt in casustic soda and soda ash :*

(all figures in '000 tonnes)

Year	Caustic Soda	Soda Ash	Total
1972	664	824	1488
1973	698	814	1512
1974	727	868	1595
1975	753	879	1632
– 976	806	904	1710
1977	879	963	1842
1978	931	987	1918

The consumption of salt in the manufacture of caustic soda and soda ash has been below expectation. In 1978, the estimated consumption was 2.4 million tonnes but the actual consumption attained was 1.9 million tonnes. Total substantial extent this was due to the difficulties encountered in the supply of power and coke which led to the under utilisation of the installed capacity for the production of these important chemicals.

A substantial capacity for the production of caustic soda and soda ash is under erection and the requirement of salt in the next five years has been assessed on the expected optimum utilisation of the capacity as estimated by the Planning Commission. However, the disposition of demand in different states and regions is not yet available.

The Planning Commission has not projected the demand of caustic soda and soda ash beyond this period of the next five years and in the absence of this the Committee has had to suitably extrapolate the demand of salt on the basis of the growth rates estimated by the Planning Commission in the next five years.

Consumption of Salt in Other Industrial Uses

3.8 Salt finds important uses in curing fish, canning, tanning, vegetable oil refining, soap, ore dressing and refrigeration. Separate detailed data on the quantum of use in these applications are not available but this has been assessed by the Study Group on the Exploitation of Salt and Sea-water set up by the Ministry of Petroleum, Chemicals and Fertilizers in 1978 as equivalent to 10% of the total consumption of salt in the manufacture of caustic soda and soda ash. In the absence of better data this assessment has been accepted by the Committee.

Exports

3.9.1 India has been a significant exporter of Salt and exports in the last ten years are indicated in the following table :

Table 3.9.1—*Exports of salt from India*

(figures in '000 tonnes)

Year	Quantity of exported
1969	621
1970	479
1971	319
1972	436
1973	394
1974	297
1975	491
1976	467
1977	410
1978	61

3.9.2 The export policy has reflected the domestic demand-supply situation. The decrease in production and the consequent depletion of stocks led to a ban on exports in 1978 except to Nepal, Bhutan and the Maldives. With some increase in production in 1978-79, exports to countries other than Nepal and Bhutan were limited to 50,000 tonnes. In the current year this ceiling has been increased to 2,50,000 tonnes. The current imports of salt in neighbouring countries and countries that do not have promising prospects of domestic production are indicated in the following table :

सत्यमेव जयते

Table 3.9.2.1—*Current Imports to Salt in neighbouring countries* :—

(all figures in tonnes/year)

I.	Bhutan	4700
	Nepal	82000
II.	Singapore	293000
	Central Africa	17800
	Malaysia	8825000
	Kenya	111000
	Congo (Zaire)	14000
	Hongkong	310000
	Japan	536000
	South Korea	1936000
	Maldives	900

(No data are readily available on the consumption of salt in Iraq and Tanzania).

The State Trading Corporation has assessed that exports of salt from India to these countries except Bhutan and Nepal can be as follows :

Table 3.9.2.2—*Potential markets for exports of salt* (*S.T.C.*)

(all figures in '000 tonnes)

Year	Assessed exports
1979-80	160
1980-81	200
1981-82	225
1982-83	250
1983-84	275
1984-85	300
1985-86	300
1986-87	325
1987-88	325
1988-89	350

Projected Demand of Salt

3.9.3 The assessments in the preceding paragraphs set out the projected demand and these are summarised below :

Table 3.9.3—*Projected demand of salt* 1980—88

(figures in '000 tonnes)

Year	Human & Livestock	Industrial	Export	Total
1980	3956(223.4/456.6)	2750	236	6992
1981	4032(226.8/463.4)	2910	313	7255
1982	4107(230.2/470.4)	3030	340	7477
1983	4183(234.2/477.4)	3190	367	7740
1984	4259(237.7/484.6)	3360	394	8013
1985	4334(241.3/491.9)	3490	396	8220
1986	4410(244.9/499.3)	3730	423	8563
1987	4486(248.6/506.8)	4030	425	8941
1988	4563/252.3/514.4)	4280	452	9295

(Figures within the bracket indicate the demand for iodised salt in area already covered/yet to be covered under goitre Control Scheme).

CHAPTER IV—PRESENT PRODUCTION OF SALT, PRODUCTION OF SALT REQUIRED TO MEET PROJECTED DEMAND AND POTENTIAL FOR INCREASING PRODUCTION

4.1 The state-wise production of salt achieved in the past is summarised in the following table.

TABLE 4.1—*State-wise production of salt* 1969—1979

(all figures in '000 tonnes)

Name of State	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Andhra Pradesh . . .	201	198	263	406	290	321	310	308	281	351	322
Goa, Diu & Daman . . .	11	11	9	14	12	12	13	4	8	14	12
Gujarat	3245	3343	3013	3770	4332	3592	3295	1486	2926	3555	3778
Himachal Pradesh . . .	4	4	4	5	4	5	3	4	4	4	4
Kerala	1	..	1	..	..	..	..	..	..	..	..
Karnataka	12	9	14	15	20	14	16	20	9	13	27
Maharashtra	461	428	471	581	541	382	408	449	557	466	520
Orissa	13	57	25	87	57	73	46	84	37	69	73
Pondicherry	..	..	..	1	1	1	1	1	..	1	1
Rajasthan	362	486	537	519	534	518	403	165	340	496	716
Tamil Nadu	850	1040	1086	1105	1059	985	1333	1540	1157	1720	1571
West Bengal	13	12	3	14	10	10	15	15	10	5	13
Total . .	5173	5588	5426	6517	6860	5913	5843	4076	5329	6694	7037

The above state-wise production from each source is set out in Annexure 4.1.

Substantial quantities of salt kept in stock in the salt works which could not be moved to consuming points or warehouses under cover before the onset of rains, were washed away. One estimate of this quantity is 20% in 1975, 32% in 1977 and 18% in 1978 (percentage of the total production). Accurate estimates of this wastage are not available but even if it is assumed that the overall percentage is 15%, it will still be equivalent to about 1 million tonnes annually.

4.2 The production of iodised salt has been as follows:—

TABLE 4.2—*Production of Iodised salt*

(all figures in '000 tonnes)

Name of source	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Sambhar	42	37	34	38	53	89	72	51	66	55	70
Kharaghoda	11	22	30	34	28	61	71	77	100	80	101
Calcutta	3	1	8	10	25	23	30	34	31	33	38
Total . .	56	60	72	82	106	173	173	162	197	167	209

4.3 Domestic demand in the next ten years has been projected in Chapter III. To this should be added inventory adjustment after ensuring suitable inventories as recommended in Chapter VI as follows.

Inventories to be Maintained by Producers

4.3.1 The inventory that should be maintained by the producers is assessed as equivalent to a minimum of three months' production.

The lowest level of inventories is generally reached at the end of December and at this point of time these have averaged around 33% or equivalent to 4 months production as tabulated below :

TABLE 4.3.1—*Stocks of Salt as on December 31st*

(all figures in '000 tonnes)

Salt producing State/Union Territory	1975	1976	1977	1978	1979
Andhra Pradesh	75.1(24)	82.5(27)	28.9(10)	60.4(17)	65.3(20)
Goa, Daman & Diu	19.4(152)	8.6(232)	3.1(38)	8.0(58)	8.3(71)
Gujarat	3796.1(115)	2022.4(137)	1336.7(46)	1511.9(48)	1345.2(36)
Himachal Pradesh	0.5(16)	0.4(9)	0.2(5)	0.1(2)	0.1(2)
Karnataka	3.8(23)	8.2(40)	1.4(15)	1.7(14)	10.2(38)
Maharashtra	78.4(19)	62.2(14)	52.5(10)	40.0(9)	97.0(19)
Orissa	15.4(33)	39.7(42)	13.8(40)	25.8(35)	23.0(32)
Pondicherry	0.2(33)	0.3(27)	..	0.1(5)	0.1(25)
Rajasthan	323.0(80)	180.4(109)	106.6(31)	117.7(24)	245.9(34)
Tamil Nadu	541.9(41)	662.4(43)	213.3(20)	536.6(34)	532.4(34)
West Bengal	2.2(14)	0.9(6)	0.3(3)	0.4(8)	2.2(17)
Total . .	4856.0(83)	3068.0(75)	1756.8(33)	2302.7(34)	2329.7(33)

(Figures in bracket show stock held as percentage of annual produdtion).

The Committee considers that the inventory that should be maintained by the producers should be notified as equivalent to a minimum of three month's production.

Inventories to be maintained in the States

4.3.2 In Chapter V, it has been recommended that states suffering from recurrent shortage of salt (which tend to arise mainly from disruption in transportation arrangements) must ensure the maintenance of an adequate minimum stock. The level of this minimum stock should be fixed after a careful review of the problem of transportation both to the States from the source of supply and within the States, in consultation with the Department of Salt and the Railway authorities. Since this may take some time, the Committee suggests that to start with such States may fix the minimum level of stocks as equivalent to three months consumption. In States where such problems do not arise frequently, the minimum stocks should not fall below one month's consumption (excluding the quantity in transit).

No accurate data are available with the Department of Salt on the inventories maintained by distributors in the States. Few States maintain any record of stocks held in their States or have stipulated that agents and distributors nominated by them must hold a certain minimum level of stocks in their particular States. Even fewer States possess warehousing under their control to maintain 'buffer' stocks of salt to tide over difficult periods.

It will be recalled that as early as 1947 the H. M. Patel Committee had recommended that States must compel the distributors in their States to hold stocks that do not fall below 3 month's consumption.

Inventories to be maintained by Industrial Consumers

4.3.3 No accurate data are available with the Department of Salt but replies received from a number of Caustic Soda and Soda ash manufacturers indicate that they normally hold stocks of 2 to 3 months' consumption and that this appears satisfactory.

4.3.4 While there is lack of data on the position of inventories held at different points, the extent of the inventory with producers and industrial consumers appears to indicate that the position is satisfactory although it is highly likely that the disposition of the inventory at different points of distribution needs to be altered radically, specially in respect of the level of stocks that should be maintained in consuming areas, the arrangements for the transportation of salt of which are frequenly disrupted.

Production of Salt required to meet Projected Demand

4.4 The total production of salt required to meet the projected domestic demand works out as follows :

(all figures in '000 tonnes)

	1980	1982	1984	1986	1988
Total salt . .	6700	7100	7600	8100	8800
(Iodised salt) .	(200/ 500)	(200/ 500)	(200/ 500)	(200/ 500)	(300/ 500)

NOTE : The higher figure for iodised salt represents requirement if the National Goitre Control Scheme is extended to cover all the goitre prone areas.

4.5 Therefore, the demand supply situation will be as indicated in the following table :

	1980	1982	1984	1986	1988
Salt required for human consumption . .	Nil	—100	—580	—1100	—1810
Exports . .	—290	—340	—400	—420	—450
Sub-total .. .	—290	—440	—980	—1520	—2260
Iodised salt . .	—10/ 500	—20/ 470	—30/ 480	—40/ 500	—40/ 500

Potential for increasing production

4.6 The potential for increasing production lies in the :

application of improved technology in the manufacture of salt in salt producing areas;

intensive utilisation of areas already producing salt;

increase in the extent and number of areas where salt production can be undertaken.

These are discussed in the succeeding paragraphs.

Application of Improved Technology in the manufacture of Salt in Salt Producing Areas

4.7 Substantial technological improvements are possible that will increase yields. The Report of the Salt Experts Committee (1950) had made many detailed recommendations in this matter. The per hectare yields in each area have varied from year to year and to an extent these variations arise from changes in meteorological and climatic conditions. Changes in area yields arising from technological developments are not known and while in a qualitative manner the Department of Salt considers that some progress has been made, no reasonable analysis of this is available to indicate the extent of progress made in each major area and the technical innovations that are yet to be adopted. This deficiency is unfortunate.

While the deficiencies in the adoption of known and well proven technological improvements are best identified for each salt works, the general nature of improvements in each area summarised below :

4.7.1 Andhra Pradesh

(Andhra Pradesh has a coast line of 1000 Kms. along which there are about 1400 medium and small scale salt works producing salt by solar evaporation of sea water; there are only 20 salt works which have an area of more than 100 acres, about 50 between 10 and 100 acres and the rest are below 10 acres. The rainy seasons are July—October and November—January. The method of manufacture is similar to that in Maharashtra with an average yield of 20 to 30 tonnes/acre : little change has taken place in the traditional methods of salt production and there is a large scope of introduction of improved technology).

Old layouts needs to be realigned with reference to the initial density of sea brine and inclusive of pre-crystallising areas and deep pond reservoirs.

Drainage for rain water and bitterns must be provided and proper drainage can extend the salt cultivation period by 1 to 2 months.

Multiple irrigation in series feeding system should be adopted; this will lead to improved yields of salt.

Uneconomical small holdings should be consolidated and consolidated areas realigned and layouts planned on a scientific basis.

Some salt factories like those located in Calingapatnam. Konada, and Vadacheepurapalli experience shortage of brine during the peak season due to frequent closures of the sea bar : intensive dredging of the sea bar will enable these to be avoided and together with sluice-cum-culvert systems, will lead to an increase in the area that can be cultivated and thereby an increase in the yield of salt.

Borewells should be drilled to see if they can lead to an enrichment in the density of sea brine.

Brine spraying should be tried to optimise the use of solar energy. The present system of deployment of workers for 4 hours work at an location and another 4 hours work at another location is inefficient and leads to poor utilisation of the potential for the recovery of salt and therefore must be altered.

4.7.2 Gujarat

[Gujarat has a particularly favourable climate for the production of salt with a rainfall as low as 50 to 60 cm. per year between July to September, an air temperature of 25°C to 40°C in summer and 20 C to 35° C in the winter months. The relative humidity is in the range of 40% to 55% and wind velocity 9 to 10 Km/hour. Along the Saurashtra and Kutch coast, there are various coastal areas with flat impervious clay which are most suitable for the production of salt. The average yield of marine salt works is 50 tonnes/ year and in the inland salt works with a high brine density (12 to 18 Be) the yield is about 150 tonnes/ year].

The quality of marine salt produced can be substantially improved from 97% to 98% to 99% (with reduction in the calcium sulphate content from 0.5% to 0.8% to well below 0.5% thereby rendering it acceptable to the chemical industry and for export markets) by maintaining a pre-crystalliser area where brine can be concentrated to 25·5° . Be and series feeding systems. Similar improvements should be introduced in inland salt works.

4.7.3 Maharashtra

(The climatic conditions with annual rainfall of 250 to 300 cms. and average humidity of above 75% which retards evaporation, are not as favourable as in

Gujarat. The yield per acre is 25 to 30 tonnes and the season of salt manufacture is November to May).

Salt works with an area in excess of 100 acres should adopt the multiple irrigation system and exercise strict control on density.

The layout of large salt works should be reorganised on the basis of availability of brine, its density, rate of evaporation and percolation.

Unsaturated brine (in both large and small salt works) should not be charged into the crystallisers. Bitterns should be regularly discharged; this will improve the quality of salt.

Deep storage ponds should be constructed to store an adequate quantity of brine at the end of the season so that salt manufacture can commence when the season starts, without delay.

4.7.4 **Orissa**

(The sea coast extends to 370 to 400 km. The average annual rainfall is 80 to 140 cums, maximum air temperature is in the range of 25° C to35° C and the relative humidity between 60% to 70%. Consequently, the climatic conditions are not very favourable for the manufacture of salt by solar evaporation).

Plan layouts should be reviewed and realigned with reference to the initial density of the brine and variation in this during the season. Deep storage ponds should be constructed to store an adequate quantity of brine at the end of the season so that salt manufacture can commence when the season starts without delay.

A pre-crystalliser area should be maintained and brine density properly controlled at each stage. Sub-soil brine should be explored for the enrichment of the brine leading to increased yields. Simple irrigation with series feeding should be adopted.

The quality of the salt produced should be improved by washing with fresh saturated brine.

The training of workers should be greatly enlarged and improved.

Fishing operations should be so regulated as to prevent damage to bunds and salt works.

4.7.5 **Rajasthan**

[Many parts of the State are rich in saliferous earth and sub-soil brine. The annual rainfall varies from 10 cm. to 50 cm. With high air temperature and wind velocity and low relative humidity, the manufacture of salt in suitable areas is feasible although in certain areas (Sambhar, Didwana and Phalodi) the content of Sodium Sulphate and Sodium bi-carbonate is high].

The layout of the existing salt works should be reviewed and reorganised on a scientific basis.

The manufacturing process must be modified and regulated on the basis of solubility ratios of the salts presented and the density carefully controlled. Bitterns must be regularly discharged from crystallisers; this will lead to an improvement in the quality of salt.

Salt supplied to the chemical industry should be subjected to mechanical washing before despatch.

4.7.6 **Tamil Nadu**

(With an average annual rainfall of 50 to 60 cms., air temperature of 30°C to 40°C in the summer and 25°C to 35°C in the winter, the climate is quite suitable for the manufacture of salt by solar evaporation even though there are two rainfall seasons, since this is compensated by rich sub-soil brine in the Tuticorin area. However, the average quality of the salt produced does not compare well with that in Gujarat).

Hard puddling of clay by vibratory rollers or lining of beds with polyethylene film should be adopted in salt cultivation areas in sandy tracts with high percolation.

Layouts must be reviewed and modified in relation to the initial brine density and variation in this in the manufacturing season and areas realigned to maintain proper ratio between crystallisers and condensers.

Adoption of multiple irrigation or single irrigation with series feeding system will lead to increased yield.

Construction of precrystalliser areas before charging brine into crystallisers and deep pond reservoirs to store an adequate quantity of high density brine during the rainy season will increase area yields.

In the Madras area, bunds should be provided on the right side of the Buckingham Canal and 25 cusecs of coolant water that will be released from the Kalpakkam Nuclear Power Plant can help to sustain the supply of brine.

The dredging of sand bars in creeks, desilting of supply channels should be intensified to ensure the supply of brine.

Training of workers and supervisors should be enlarged and improved.

The quality of salt should be improved by washing it in pans with brine or by suitable mechanical washing.

4.7.7 **West Bengal**

[The annual rainfall average is 150 cms. with high average humidity and these together with occasional cyclones (which results in dilution of sea water by fresh river water) and irregular sea coast (so that large tracts for salt production are not readily available)results in a poor potential for the production of Salt].

Construction of deep pond reservoirs to store high density brine in the off season and the use of series feeding systems.

Consolidation of small holdings and the realignment of areas on a scientific basis.

Control of brine density and pre-crystalliser area and regular discharge of bitterns at 29 Be.

Salt washing in the pans by saturated brine of 24° . Be to reduce the content of Calcium and Magnesium salts and thereafter mechanical washing to yield high quality salt. The use of sub-soil brine for manufacture of salt should be studied.

Hard pudding by vibratory rollers to reduce losses of saturated brine by seepage or percolation.

Trials in the use of artificial methods of evaporation such as mechanical spraying.

4.7.8 Other Areas—Karnataka, Goa, Daman, Diu and Pondicherry

(With high rainfall and relative humidity, the climatic conditions are not very favourable for the manufacture of salt by solar evaporation. The quality of the salt produced is poor).

Detailed surveys needs to be carried out to establish the viability of increasing salt production.

Mandi

(Production is currently limited to 4000 tonnes year of rock salt and 1000 tonnes/year pan salt).

The viability of increasing production substantially needs to be studied.

4.7.9 Other Factors Affecting the Optimal Production of Salt in known Areas

These are summarised below :

Unseasonal rainfall and natural calamities such as floods have seriously affected the production in several areas such as Sambhar. A study of those together with the feasibility of constructing discharge channels to drain flood water from salt works and embankments to prevent inundation of salt works will assist in minimising the loss of salt produced and encourage salt manufacturers to adopt measures that will increase the yield.

Improvement in infrastructure facilities such as approach roads, water supply, desilting of channels, culvers and rail sidings, is necessary to increase production.

Modification of procedures that will enable expeditious resumption of unworked areas.

Encouragement in the realignment of holdings to both increase the yield of salt and improve its quality.

4.7.10 The assessment of the Central Salt & Marine Chemical Research Institute, Bhavnagar is that the adoption of improved technology, as summarised in the preceding paragraphs, could lead to an increase in the current yield by about 10%. Although detailed data on costs and benefits have not been worked out, it is generally agreed that the viability of so increasing production will be highly attractive. There are also other factors that affect the quantum of production. In certain areas the paucity of labour acts as a constraint. In large works the lack of mechanical harvestors (which could to an extent minimise the difficulties faced by the shortage of labour) has also led to sub-optimal production. Estimates of the increase in production possible through the adequate availability of labour or alternatively the availibility of an adequate number of mechanical harvestors, range between 10% to 20% of the total production currently achieved.

This Research Institute also considers that the use of 5 to 10 PPM of Solivap Green dye (such as Atul Vaporite Green PXC) could lead to a further increase in the current yield by about 15%. This increase in yield is certainly significant and according to one test an expenditure of Rs. 340 in the use of the dye has led to increase in the yield of salt from one crystalliser of 30 tonnes, (equivalent to 15% of the normal yield of this crystalliser without the use of the dye), valued at about Rs. 1500. Therefore, the benefits of the use of this dye—which in the quantity recommended for use does not affect the colour—are substantial. The Committee considers that the application of Solivap Green dye must be promoted rapidly by much more extensive trials. Simultaneously in consultation with the Director General of Technical Development and the Department of Petroleum, Chemicals and Fertilisers, the Salt Department should pursue the domestic manufacture of this dye so that the domestic price of this dye is reduced to he extent possible. It is probable that the use of Solivap Green may prove specially attractive in low-yield areas near the centres of large consumption such as West Bengal.

The Committee regrets that detailed surveys to establish the progress achieved in each of the major salt producing areas in the adoption of known well proven technology have not been made so far nor is there so far any concerted plan to facilitate the adoption of such improved technology. Traditional and frequently sub-optimal methods continue to be employed by the vast majority of salt manufacturers and this is despite the specific recommendations of the Salt Experts Committee 30 years ago on the type of improvements that are beneficial and whose adoption should be facilitated.

Increase in Production through Better Utilisation of Land Suitable for Salt Cultivation

4.8 Only 46% of the area licensed is under cultivation for the manufacture of salt so that a considerable increase in production is possible by enlarging the extent of utilisation of areas already licensed, Assuming that only 50% of the licensed areas so far not cultivated for the production of salt is put under cultivation and is able to achieve no more than the average yield realised in the representative licensed areas under cultivation in that State, without taking into account the improvement in yields resulting from other factors such as the adoption of better technology or the prevention of washing away of stocks of salt by the onset of the rains, the additional production that can be realised is summarised in the following table.

TABLE 4.8—*Additional production possible from licensed areas so far not under cultivation for the manufacture of salt*

State	Licensed area in acres	Licensed area under cultivation in acres	Average yeild achieved in tonnes/acre	Additional production possible if 50% of the uncultivable area achieves average/yield in '000 tonnes year
Andhra Pradesh	19971	13202	22	74
Goa, Daman & Diu	1966	1693	15	2
Gujarat	179930	90675	50	2231
Karnataka	2486	2374	10	1
Maharashtra	27417	24977	20	24
Orissa	7461	5543	12.5	12
Pondicherry	643	33	10	3
Rajasthan	86619	5264	30	395 (excluding Sambhar).
Tamil Nadu	34912	25052	50	246
West Bengal	2481	2079	5.5	1
Total	363886	170892		2989

The Committee has not been able to study the relative merits of encouraging the increase in the production of salt in each of the States. It may be that production costs in such areas as Gujarat, Rajasthan and Tamil Nadu are such that their expected production can be landed in deficit States at a cost that will be substantially lower than the cost of production that can be achieved in that State. However, an aspect that should be given greater importance than hither to is the real costs of transportation which will be substantially higher than the freight rates actually charged so that in real terms it may prove to be economically more beneficial to encourage the production of salt in certain deficit areas; this could be specially relevant in States that are located far away from the centres of major production such as West Bengal and States in the North Eastern part of the country. Therefore, in identifying areas where further production should be encouraged, it will be necessary to analyse costs and benefits of so doing in each of the areas that are potentially promising.

4.9 In the cooperative sector too, the area actually cultivated for the production of salt is substantially lower than that licensed. This together with the potential increase in production if only 50% of the unutilised area is put under proper cultivation, is indicated in the following table.

TABLE 4.9—*Additional production possible from licensed areas in the cooperative sector so far not under cultivation for the manufacture of salt*

State	Licensed area in acrea acres	Licensed area under cultivation (in acres)	Average yield Achieved in tonnes/acre	Additional production possible if 50% of the uncultivable area achieves average yield in '000 tonnes/year
Andhra Pradesh	1560	1105	22	5.0
Goa, Daman & Diu	795	601	15	1.5
Gujarat	17044	5740	50	232.6
Maharashtra	1901	1631	20	2.7
Orissa	1818	1330	12.5	3.0
Rajasthan	564	310	30	3.8
Tamil Nadu	1515	1088	50	10.7
Total	25197	11805		309.3

4.10 In the unlicensed sector, data are not available of the extent of the total area secured for the production of salt or the actual area under cultivation.

Potential of Salt Production in Saline Lands which are not yet under Salt Cultivation

4.11 There are a number of other areas that appear to have a promising potential for the manufacture of the salt as indicated below :

State	Vacant saline lands in acres	Potential production in '000 tonnes/year
Andhra Pradesh : (West Godavari, East Godavari, Visakhapatnam, Prakasam, Krishna and Nellore Districts)	26000	520
Gujarat : (Rajkot, Bhavnagar, Jamnagar and Kutch district and some other districts of South Gujarat)	30000	1200
Karnataka :	N.A.	N.A. (to be surveyed)
Maharashtra : (Thana, Kolaba and Ratnagiri Districts)	12350	270
Orissa : (Balance, Cuttack and Ganjam Districts)	48000	480
Rajasthan :	N.A.	N.A. (to be surveyed)
Tamil Nadu : (Tirunelveli, Ramanathapuram, Tanjavur, South Arcot and Chingleput Districts)	20000	600
West Bengal : Midnapur District)	3440	34
Total	139790	3104

Annexure 4.2 sets out the details of some large saline tracts available for exploitation in these districts.

Proper surveys of these areas to establish the most optimal systems of manufacture and their viability have yet to be completed. Certain of these areas may be specially suitable for meeting the requirements of industry.

4.12 Two further handicaps are faced in maximising the production of salt. Restrictions have been imposed by certain salt producing State Governments in the supply of power without taking into account the seasonal character of the industry which can produce salt only during the dry months. This handicap can be removed by recognising the seasonal character so that salt producers can get uninterrupted adequate supply in the dry season. The inadequate supply of diesel fuel has also affected production. Here too, the seasonal character of the industry must be recognised so that adequate supplies of such fuels are available to salt producers in the dry season.

4.13 A large number of bring springs have been located in the States in North-East and data on some of these is set out in Annexure 4.3. Many more such springs are known to exist. Some sporadic local production of salt from these springs does take place although in a rather haphazard manner. Difficulties have been encountered in ensuring a steady supply of salt from major salt producing areas to certain localities in these States and it is conceivable that salt production from some of these bring springs in such locations may be found viable in terms of the real cost of production and transportation of salt from other areas. The Committee considers that the viability of producing salt from the more promising of these brine springs should be studied quickly in this context. Moreover the Committee also considers that geological survey programmes in such areas that are far distant from the major source of salt production should include the location and study of the sources of salt (such as rock salt and brine springs) so that the viability of production of salt from these sources to meet local needs can be determined quickly thereafter. The Salt Department should pursue these recommendations with the State Governments concerned and, wherever necessary, use its good offices to ensure that funds for undertaking these programmes are released promptly. Moreover when such domestic local production appears viable, the Salt Department should extend technical and other help to assist the establishment of this production.

4.14 Many representatives of the salt industry have emphasised the heavy loss often suffered by factors entirely outside their control, notably unseasonal rains and cyclones and have suggested that a suitable scheme should be developed to provide insurance against such loss. While some funds to meet the expenditure incurred in such abnormal situation have been provided in the past from the salt cess fund, these are not considered adequate and the time taken to release such funds found to be unduly long; the salt industry has suggested to the Committee that the real solution lies in a scheme of comprehensive insurance of assets somewhat on the lines of crop insurance schemes. Clearly there are a number of problems in formulating such a scheme and so the Committee recommends that in association with the General Insurance Corporation, the Salt Department should initiate studies to examine the various implications.

Rock Salt

4.15 Rock salt deposits are believed to exist in Rajasthan. The feasibility of exploiting these so as to locate another major source that is much nearer to the areas of demand than the existing sources and to specially meet certain specific type of demand for which rock salt is preferred needs immediate study.

Iodised Salt

4.16 Iodisation plants have been erected by the Hindustan Salts Ltd. in Sambhar and Kharaghoda and by the Department of Salt in Calcutta. The capacity of these plants on a two shift basis, recent production and projected demand-supply position is tabulated below :

(figures in '000 tonnes)

Source	Capacity	Production					
		1977		1978		1979	
		D	E	D	E	D	E
Sambhar	185	41	25	31	24	38	32
Kharaghoda	115	52	48	44	36	44	57
Calcutta	81	31	..	32	..	38	..
Total	381	124	73	107	60	120	89
		197		167		209	
Domestic demand in areas notified under the present National Goitre Scheme		224		224		224	

D=Domestic.
E=Export.

It will be seen that the production and supply of iodised salt has been substantially lower than the assessed demand of the presently notified goitre endemic areas; the areas so far notified do not inlcude several others in which incidence of goitre has been detected and whose demand of iodised salt could be 4,56,600 tonnes. The present production is limited to three plants located in Kharaghoda (Gujarat), Sambhar (Rajasthan) and Calcutta (West Bengal); the first two owned and operated by M/s. Hindustan Salts, a Central Public Sector Undertaking and the third by the Department of Salt. The capacity utilisation of these plants is set out below :

(all figures in Tonnes)

Source	Annual capacity in 2 shift basis	Actual production in 1978	Demand/ allocation
Sambhar . . .	185,400	555,000	97,100
Kharaghoda . . .	115,200	80,282	133,500
Calcutta . . .	81,000	31,776	66,400
Total . .	381,600	167,058	297,000
(exports included in figures) . . .		(60,416)	(73,000)

The erection of the iodisation plant in Calcutta was justified at the time since all salt movements to the goitre endemic areas in the North of West Bengal and the North Eastern region were based on the shipment of salt by coastal vessels into Calcutta. However, with the change in the pattern of movement in favour of an all-rail-movement to these goitre endemic areas, which is also substantially cheaper than movement by coastal vessels, this plant location does not any longer prove to be the most economic although in the absence of alternative sources of iodised salt, some movement of iodised salt from the calcutta, plant to the goitre endemic areas to the North Eastern part of the country continues to take place.

It is clear that the capacity utilisation of the other two plants is low eventhough a significant part of the demand remains unfufilled. This, the Committee was informed, was due to the poor operation of the plant. The Committee is not wholly satisfied that adequate steps have been taken to rectify these deficiencies and suggests that Hindustan Salt should attempt to obtain specialists from domestic producers of similar equipment (of which there is atleast one) to advise on the modifications that need to be made to enable the plant to operate at capacity quickly.

The Committee has also endeavoured to study the desirability of setting up more plants. All the States with area notified as goitre endemic have expressed their keen desire to set up plants within their goitre endemic areas to ensure that only iodised salt is available in these areas and prevent the intrusion and sale of non-iodised salt. A number of private sector entrepreneurs have also shown their interest in establishing such plants. Given the level of current demand (224,000 tonnes) and potential demand (682,000 tonnes), it is clear that erection of further capacity will be most valuable.

The Committee has attempted to determine the most suitable location for this new capacity. There is considerable debate on whether or not the iodine content of iodised salt declines with storage time, during its rail transporation and in inventory. The data available are conflicting and no clear result is so far available. Nevertheless, there are advantages in not storing iodised salt too long a time.

There are three types of processes available—dry, sprary and submersion, the last having been developed by the CS&MCRI, Bhavnagar and has now been accepted by the Ministry of Health. The capital cost of a spray process plant to manufacture 14,000 tonnes per annum is estimated at Rs. 7 lakhs (including the cost of erection, building etc). The capital cost of a submersion process plant is much lower. The capital cost of erecting a large number of plants is therefore exceedingly small. The cost of production of plants utilising these processes are similar except that the submersion process does not suffer significantly from diseconomies of scale whereas the other two do.

In view of these considerations and the importance of ensuring the ready availability of iodised salt specially in all the areas where the incidence of goitre is known (and here the Committee wishes to point out that in other countries all the salt available for human consumption is iodised), the Committee considers that there should be no restriction to the erection of such plants in the private or public sector nor is there any need to be unduly strict in regard to the choice of the locations. The standards for iodised salt are already set and all that it is necessary is to ensure that such plants enforce strict quality control standards. Such States as may wish to erect their own plants in the State Public Sector or Joint Sector should be encouraged to do so. However, the subsidy available from the Ministry of Health for the production of iodised salt (which is an insignificant proportion of the ultimate consumer selling price) can be confined to the production of plants owned by the Central Government or the State Government to ensure that there is no abuse.

With the acceptance by the Ministry of Health of the submersion process for the production of iodised salt, it now becomes possible to convert non-iodised salt that may have infilterated into goitre endemic areas, into iodised salt even in the small quantities available in the retail market. State Civil Supplies Officers in goitre endemic areas can be trained to carry out this operation with small standard testing kits that can be readily developed by the CS &MCRI, which should be requested to undertake this work quickly.

The Committee was informed that the despatch of iodised salt from Calcutta to the North Eastern States could be increased immediately by placing its rail movement in Category B instead of the current placement in Category C : the Committee recommends that this be accepted and implemented without delay.

Production of other Varieties of Salt

4.17 Several other varieties of salt should also be produced in the country. Notable among these are salt fortified with calcium and iron. The technology for these has been developed by the CS & MCRI and while there is some uncertainty on the cost of production of these relative to non-fortified salt it will not make any significant difference in the ultimate consumer selling price. Both the central and state public sector plants have an important role to play in promoting the production and sale of these types of fortified salt that can materially benefit the health of the consumers in the country.

Imports

4.18 The likely deficits that might emerge in the coming years can be readily covered by the increase in production that is feasible almost immediately as set out in paragraphs 4.7, 4.8, 4.9 and 4.11 and summarised in the following table.

TABLE 4.18—*Production, Demand and Supply*

(all figures in '000 tonnes)

	1980	1982	1984	1986	1988
Deficit for domestic consumption	—	—100	—580	—1110	—1810
Targetted exports	—290	—340	—400	—420	—450
additional production possible from licensed areas so far not cultivated (para 4.8)	+2989				
additional production that can be achieved from potentially promising areas not yet under cultivation (para 4.11)	+3104				
additional production that can be saved from 'wastage' (due to its being washed away by the rains) by improved transportation, and warehousing in consumption centres	>1000				
Increase due to improvement in technology . .	10% of production.				

It is clear, therefore, that there will be no need or danger of having to resort to imports provided adequate stocks are maintained to overcome any specially adverse situation such as exceptionally unseasonal rainfall or floods or cyclones.

Some salt manufacturers have expressed an apprehension that the domestic production may be jeopardised by imports of rock salt from Pakistan that has been placed in the list of items for which Open General Licences are available with effect from May 24, 1978. The Committee considers that these apprehensions are misplaced. The quantity of rock salt that might be imported as a result of this cannot but be exceedingly small and can only cater to specific limited uses in which this type of salt is preferred such as Ayurvedic and Unani medicines. However, it is necessary that this rock salt must be used for only such legitimate purposes and not be permitted to be used for edible purposes in areas declared goitre-endemic where only iodised salt should be permitted to be sold for edible consumption.

Exports

4.19 There has been a sharp decline in exports from 621,000 tonnes in 1969 to barely 297,000 tonnes in 1974 increasing to 400 to 500,000 tonnes in the years thereafter except in 1978 when a temporary ban was placed on exports to most countries due to an exceptionally poor domestic production resulting from unseasonal rainfall in salt producing areas combined with floods and cyclones. The projections prepared by the State Trading Corporation indicate that exports of the order of 350,000 tonnes are considered feasible in 1988-89 : these are clearly influenced by the present facilities available for the movement of salt works to loading ports, for loading into ships in ports as also the quality of salt available for export in relation to the quality demanded in export markets. It is known that facilities such as barges for movement from salt works to loading ports, telephone and telecommunication facilities for such barge movements, unloading and loading facilities in ports are exceedingly limited. Discussions held in the advisory committee formed by the Ministry of Shipping and Transport in September, 1971 considered that the principal factor inhibiting exports was the poor rate of loading ships in Indian ports of 1,200 tonnes per day in comparison with the rates of 40,000 tonnes per day in Mexico and 10,000 tonnes per day in Australia. Studies carried out in 1973 suggested that the domestic production was adequate to sustain an export of 1.4 million tonnes per year and that the Kandla Port could be a major exporting port responsible for handling 500,000 to 700,000 tonnes of salt annually provided it was equipped suitably to load 30,000 D.W.T. vessels at the rate of 10,000 tonnes per day. A techno-economic feasibility report on salt loading facilities carried out by Desein (New Delhi) for the Kandla Port Trust confirmed that the annual export of 500,000 to 700,000 tonnes of salt from the Kandla port was feasible and after considering a number of alternatives, identified the most cost effective method of achieving this with a loading rate of 10,000 tonnes per day so that salt could be exported in vessels of 30,000 to 40,000 D.W.T. It also pointed out that exports in this manner could increase the FOB value of export by about 50%. Some discussions on the recommendations in this study were held thereafter but for reasons that remain unclear the whole project was dropped.

No recent studies are available on the cost effectiveness of providing facilities to enlarge the export potential and capture large markets such as Japan. The Committee recommends that such studies must be undertaken quickly by the State Trading Corporation in consultation with the Salt Department and the States of Gujarat and Tamil Nadu.

Summary

4.20.1 While the current level of production is adequate to meet the current year's demand, the projected demand in 1988 will require an increase in domestic production of 2.3 millon tonnes.

4.20.2 Poor transporation arrangements for the despatch of salt from producing areas to consumption points combined with poor warehousing arrangements in such points lead to an annual 'wastage' of almost one million tonnes of salt by its being washed away at the onset of rains. Improvement in these can readily increase the quantity of salt available for domestic consumption.

4.20.3 Domestic production can be increased by atleast 10% by the adoption of improved technology thereby leading to an increase in the domestic production of about 0.70 million tonnes. The availability of adequate labour in salt works and of mechanical harvestors in the large salt works can increase the production further by atleast an equivalent quantity.

4.20.4 An increase in the utilisation of areas already licensed for the manufacture of salt even if it be to the extent of 50% of the unutilised area, can lead to an additional production of 3.0 million tonnes in the licensed sector.

4.20.5 Just the above measures are more than adequate to meet the projected increasein demand. Further potential exists by undertaking salt manufacture in approximately 139,790 acres. In addition, there are a number of other sources hitherto untapped for the production of salt notable among these being the large number of brine springs in the North Eastern States and rock salt deposits believed to exist in Rajasthan. The importance of studying the feasibility of exploiting these arises from their proximity to consuming areas which are commonly fed by supplies of salt from distant areas which is frequently hindred by difficulties in the transportation of large quantities of an essential commodity over a very long distance.

4.20.6 Thus while there need be no apprehension that the anticipated future increase in demand could lead to a shortage in supply, there still remains the problem of determining what is the most viable strategy of expanding production in the most cost effective manner taking into account the real costs to the economy.

4.20.7 The supply of iodised salt in the areas notified under the National Goitre Control Scheme has been barely half the assessed demand. While the domestic capacity for the manufacture of iodised salt is adequate to supply the requisite quantity, the difficulty in distribution from the three existing iodisation plants (two of which are located in the salt manufacturing areas of Rajasthan and Gujarat and one in Calcutta) and poor operation of the existing iodisation plants together with a failure to take measures on ensure that only iodised salt is available in the notified areas, has led to this unfortunate position. The Committee recommends that the capacity for iodisation should be permitted to be erected in the public and private sectors jointly so as to overcome the recurrent problems in distribution and the nature of the steps that the Salt Department and the State Governments must take to ensure rapid elimination of goitre in areas in which this disease is endemic.

CHAPTER V—DISTRIBUTION OF SALT—ZONAL SCHEME, STORAGE AND RETAIL DISTRIBUTION AND THE USE OF SALT GOLAHS IN CALCUTTA.

Transport of salt from salt works to rail sidings and loading points

5.1 Salt for edible purposes is moved from salt works by road in 75 kg. bags to rail sidings. Loose salt is not permitted to be so moved for edible consumption.

A large number of salt manufacturers complained to the Committee that roads from their works to rail sidings are most inadequate and road movement often involves the movement of vehicles cross-country over the fields under salt farming thereby affecting the quality of salt stocked in these and fields in adjacent salt works near whom or through whom vehicles have to pass. Moreover, the transportation of salt over roads or across fields also proves costly.

The Committee accepts that very considerable improvement in the erection and maintenance of roads is required to facilitate the movement of salt from works to railheads without affecting the operations of the existing salt works. Financial assistance for these is permissible from the existing Salt Cess Fund and the Committee notes that the progress made in this matter has been tardy.

5.2 The production of salt from a number of salt works in certain parts of the West Coast has to be carried by barges to reach loading jetties and rail heads. Here, difficulties have been experienced in the ready availability of an adequate number of barges and tugs as well as other facilities such as the provision of HF and VHF sets to ships in midstream (for onward movement by coastal vessels), navigational facilities for the guidance of crafts over sand bars and telephones. Here too, analyses of the facilities required need to be carried out by the Department of Salt and the State Governments so that effective steps are taken in providing the requisite facilities without delay.

5.3 Salt manufacturers have also complained of the absence of rail sidings that are considered feasible in a number of areas. There is little doubt that wherever these are feasible—in the context of the terrain and the quantity of salt available for movement—these could lead to cost savings given in the increasing cost of road transportation. Here too, detailed surveys or studies prepared are inadequate and consequently there is no comprehensive time phased programme for their provision.

5.4 As stated in paragraph 5.1, loose salt for edible purposes is not permitted to be transported by road. The probable reason for this was fear of contamination by dust but this is now relatively simple and inexpensive to avoid by the use of polyethylene film wraps. The Committee considers that the movement of loose salt by road can, in certain circumstances, facilitate transportation and lead to lower costs and therefore recommends that this prohibition be withdrawn, but measures that must be adopted to ensure that there is no contamination by external dust etc. (such as wrapping in polyethylene film with overall covering by tarpauline) must be specified by the Department of Salt. Consequential modifications may also need to be made in some State Manuals.

Transportation by Rail

5.5 Salt producing areas have been grouped in seven zones and each zone has been nominated to serve specified States. This arrangement was instituted in 1949. There have been no significant changes in either the zones or the States specified for supply by each zone.

The allotment of railway wagons is regulated under the system of 'Preferential Traffic' as follows (in order of the priority accorded):

Category B—Movement of iodised salt.

Category C—Movement of edible salt.

Category D—Movement of industrial salt as nominated by the Department of Salt.

Category E—Ad-hoc movement as accepted by the Railways (along with other general goods).

The last zonal wagon allocation which covers Category B and C movement was made in 1976 as follows:

Zone	Priority movement category		Annual allocation		States to be supplied
			No. of wagons	Quantity (in '000 T)	
Rajasthan	C		15671	250.70	Bihar (North and South), Punjab, Haryana, UP, HP, Chandigarh, Delhi, Rajasthan, Defence, Nepal.
	B		6069	97.10	
Kharaghoda . . .	B		5563	133.50	Bihar (North and South), MP, Gujarat. UP, Rajasthan, J&K, Defence, Nepal.
	C		13063	313.50	
Bombay .	C		16666	400.00	Maharashtra, Karnataka, AP, MP, Bihar (North and South), Gujarat.
Jamnagar	C	BG	10457	251.00	Punjab, Haryana, Bihar (North & South), MP, Delhi, Rajasthan, UP, Gujarat, Assam, Meghalaya, Mizoram, Tripura, Sikkim, Maharashtra & Bhutan.
		MG	37988	607.80	
Madras .	C	BG	7781	186.70	Orissa, Tamil Nadu, Kerala, Karnataka, MP, AP, Bihar (North and South).
		MG	17063	273.00	
Calcutta .	B		2848	68.30	West Bengal (5 districts), Manipur, Nagaland, Arunachal Pradesh
	C		833	20.00	
Orissa	C		605	14.50	Orissa.

Certain changes took place thereafter in 1977. At present, the position is that all the North Eastern States receive their entire requirement of edible salt by rail: salt for all other purposes moves to these States by the sea-cum-rail route. In regard to West Bengal, rail movement of salt is restricted to 25 wagons per day equivalent to 1,44,000 tonnes per annum with the balance to be moved by sea.

5.6 The actual movement of salt by rail for edible consumption has been as follows:

(figures in '000 tonnes

Category	Movement targetted	Actual movement
B	299	167
C	2317	1701
Sub-total	2616	1868
E	Not targetted	387

Thus, while the overall shortfall in the railway movement of salt for edible consumption was 0.36 million tonnes or slightly more than 14%, the shortfall in Category B and C movements that are specifically routed to states to meet their estimated requirements was as high as 29%. This shortfall is all the more serious in that it led to inadequate supply of iodised salt to goitre endemic regions and specially affected the supply of salt in the North Eastern and Eastern States as indicated in the following table:

(figures in '000 tonnes)

State	Estimated demand	Actually moved in	
		1977	1978
Iodised Salt :			
Himachal . . .	24	11	7
Chandigarh . . .	2	2	2
Haryana (one district) .	8	5	4
Punjab (three districts) .	20	7	6
UP (nine districts) . .	38	25	21
J & K . . .	34	24	21
Bihar (one district) . .	30	9	13
West Bengal (five districts)	51	25	21
Manipur . . .	9	3	5
Nagaland . . .	4	2	4
Arunachal . . .	4	2	2
Total . . .	224	115	106
Non-Iodised Salt :			
Assam . . .	125.0	128.3	112.7
Meghalaya . . .	7.6	3.9	8.4
Mizoram . . .	2.5	0.1	0.1
Tripura . . .	12.7	11.0	14.5
Sikkim . . .	1.9	1.1	1.7
Total . . .	149.7	144.4	137.4

Movement of salt to industry

5.7 In 1978, the total quantity of salt moved for industrial purpose was 0.42 million tonnes while the demand was estimated at 2.04 million tonnes. Several industrial units meet their demand from nearby salt units (some of which are captive). Some others located near the sea coast are able to accept coastal shipment. Nevertheless, the Committee was informed by a large number of industrial consumers that they face considerable difficulties in procuring and transporting salt from suitable sources and had frequently to resort to road movement over long distances which is both expensive and economically wasteful. While the Salt Department has endeavoured to respond to urgent request by allocating railway wagons for Category D movement, the Committee has noted that cost effective plans for the movement of salt to industry by rail and coastal shipping are inadequate and have yet to be formulated with some degree of precision.

Movement of salt by road

5.8 The Committee is concerned to note that the movement of salt by road has continued to increase from 1.93 million tonnes in 1976 to 3.25 million tonnes in 1979. While it is true that some part of this movement is from salt works to nearby centres of consumption—both industrial and non-industrial—there is evidence that the shortage of railway wagons and coastal shipping has led to a very rapid increase in the movement by road even though movement by rail could have been cheaper. This has contributed to high costs and has vitiated efforts to maintain reasonable prices of edible salt in several areas and has also affected the price of important industrial items used in the manufacture of several essential commodities such as soap.

The Committee has not seen any material evidence of any effort at working out an optimally cost-effective pattern of movement of salt to remote consuming centres by road, rail, coastal shipping and river craft. Even the basic data required for such an analysis are lacking. The Committee considers that the formulation of such a study and the preparation of a proper scheme, is most urgent.

5.9 Certain other aspects of the present pattern of railway movement which, the Committee was informed, have assumed importance recently, are as follows:

railway wagon bookings are in the name of the salt manufacturers & salt manufacturers are able to change the destination of the wagons they have booked;

representatives of State Governments participate infrequently in coordination meetings held between representatives of the Salt Department and Zonal Railway Officers nor do they arrange to get data on rail wagon despatches made to their States;

there is little consultation between the Salt Department and the railways on the feasibility of increasing the number of rail sidings to facilitate the movement of salt from salt works;

the Salt Department itself has little experience in the problems of railway movement or optimisation in the use of railway facilities.

restrictions in railway movement in certain sections which throw the zonal plan movement away without immediate ameliorative action to effectively deal with the resulting problems in the supply of salt.

5.10 The Committee considers that considerable improvements in rail movement are possible as follows:

5.10.1 Railway wagons must be allotted directly to the State Governments in accordance with their assessed requirements in Category B and Category C with their nominated wholesalers and distributors acting on their behalf if these States so desire. But no change in the destination booked in accordance with the instructions of the State Government should be accepted by the railway authorities without the specific authorisation of the State Government. The Committee was informed that rail wagon despatches of iodised salt from Calcutta to goitre endemic areas in the North-East were placed in Category C: the Committee considers that till such time that all rail movement of iodised salt from the sources of supply of this type of salt (Rajasthan & Gujarat) is adequate to meet the full requirement or till the iodisation plants are established in these areas in North-East, movement of iodised salt from Calcutta is inevitable and should be placed in Category B.

5.10.2 Rail wagons for Category D and E traffic must be allotted only after fully satisfactory allocations are made for Category B and C movements (even in respect of after hours or holiday loadings). If for any reason the number of railway wagons placed for loading exceeds the number allotted for Category B & C then the Station Masters concerned should approach the nearest Assistant Salt Commissioner or Salt Officer to check if there are any other indents (for Category B & C) that should be met before he allocates the rail wagons for Category D & E traffic.

5.10.3 The Salt Department and the Railway authorities in consultation with the State Governments, should jointly work out a detailed programme of the movement of salt (both iodised and non-iodised salt) indicating:

additional rail sidings that are feasible and that will facilitate the movement of salt from the salt works;

the nomination of loading stations that will facilitate the quick movement of salt and also result in overall cost savings to consumers as also the additional facilities (Platforms etc.) that must be provided in such loading stations;

the routes on which full or partial rake movements are acceptable and the facilities for this that must be provided in the identified loading stations;

the feasibility of utilising open wagons suitably covered by tarpaulins in fair weather months to supplement the transportation of salt in covered wagons;

transhipment points that cannot be avoided and the facilities will have to be provided so that transhipment can proceed smoothly;

assessment of wagons required for the movement of salt from each salt producing area to meet the projected demand atleast five years ahead;

a detailed movement plan for each year for each zone (and for the next five years) subdivided into the plan for each quarter (taking into account the need to create stocks in centres of consumption to cover likely shortfalls in railway movement arising from movement restrictions on certain sections imposed in certain months) and meeting held every quarter to which State Government representatives must be invited to review the progress achieved in meeting the previous quarter's plan and the adjustments that need to be made in the plan of the following quarter;

a review of zonal plans and achievements atleast once every six months with the Railway Board to identify deficiencies so that the Railway Board can find suitable solutions.

5.10.4 The Salt Department and the Railway authorities must constantly keep under review the possibility of relaxing (and in due course removing) restrictions on the movement of salt by rail from the Southern salt producing areas to West Bengal and the North Eastern States where there appears to be a preference for the types of salt available from these sources.

The Committee considers that these recommendations can be pursued initially by the Salt Department procuring the services of experienced railway officers on deputation to study the problems of rail transporation and to prepare an initial plan for further discussion and detailing with the railway authorities in different zones as well as the State Governments. Moreover, considering the crucial importance of streamlining railway movement in the proper and economic distribution of salt, the creation of a compact division in the Salt Department to deal with this area of activity in is inescapable and the deputation of railway traffic specialists to this division will undoubtedly assist in making this critical division effective without delay and without waiting to train officers of the Salt Department to discharge these responsibilities (which will have to be done simultaneously).

Movements of Salt by Coastal Vessel

5.11 As pointed out earlier, salt for edible consumption in excess of 25 wagons per day equivalent to 1,44,000 tonnes per annum to meet the demand of West Bengal and the demand of salt for industrial use in West Bengal and all the North Eastern States are to be moved by coastal vessels from the West coast and the Tuticorin area. In 1978, the quantity of edible salt to be moved to Calcutta by coastal vessels was estimated at 2,22,000 tonnes and coastal vessels proved adequate to ship this quantity. However, several difficulties were experienced. Restriction in the draft in the Hooghly affected the quantity that could be carried and this often led to partially loaded vessels thereby increasing the freight which, as a result of sharp increases in the price of bunker fuel oil, already exceeds the rail freight from the same source. Due to financial limitations small distributors are unable to order and take delivery of a full shipload and the Committee has received complaints that this has led to such small distributors being squeezed out by large distributors who tend to charge monopoly prices. Manual unloading of ships and loading into barges are slow and expensive and dock labour charges high. These difficulties are enhanced by the bunching of vessels received in the Hooghly.

The Committee considers that the bunching of vessels' arrivals can be avoided to an extent by much closer coordination between the Salt Department and the Director General of Shipping. Improved methods of unloading and loading are available and the feasibility of their introduction must be studied quickly. The Salt Department, in consultation with the Director General of Shipping should be able to devise arrangements for pooling together orders that can be placed by several small distributors so that a full shipload of salt can be shared by them. Partial of loading of salt in the Haldia Port can avoid the receipt of partially laden ships; in fact, the development of salt storage in the Haldia Port and distribution from there to consumers that can receive supplies directly from Haldia must be encouraged.

In consultation with the Director General of Shipping and the Tuticorin Port authorities arrangements must be made quickly for the direct jetty loading of salt into coastal vessels.

Arrangements for public storage and retail distribution of salt

5.12 The analysis contained in Chapter VI establishes that large fluctuations take place in retail prices in areas located at long distances from the salt producing areas and that prices frequently reach unreasonable levels. The margins actually realised by wholesalers and retailers at particular points in the distribution chain system far exceed these agreed with the State Governments. All evidence suggests that the main reason for this situation is the shortage of rail transportation exacerbated by sudden restrictions in the movement on various railway sections and the lack of adequate stocks in the centres of consumption to tide over sudden disruptions in railed supplies. This situation is specially recurrent in the eastern part of Bihar and West Bengal and States in North Eastern part of the country. The Committee attempted to identify the measures required to deal with this situation in terms of the lacunae noticed in each part of the distribution chain as follows :

Appointment of wholesalers (distributors) and retailers

5.12.1 The State Government must exercise much greater vigilance in the selection of wholesalers (distributors) and retailers on the basis of their past performance, likely future behaviour and procurement practices. It is unlikely that the very high premia available for the allotment of wagons would have continued to prevail without some degree of collusion and ready acceptance by wholesalers and distributors. (It is also significant that very few State Governments are aware of this high premium).

In negotiating contracts with wholesalers and retailers the State Governments must also carefully scrutinise the break-up of the detailed price quoted, to ensure that the various components are fair and legitimate. In this matter, consultation with the Department of Salt should prove to be of value.

5.12.2 The State Governments must analyse the facilities available for holding stocks in various centres of consumption and stock levels that must be maintained in such centres to ensure that retail prices remain steady even when the rail movement is temporarily disrupted or supplies interrupted for reasons that are often predictable based on past patterns. Here the State Governments have options; they can either call on the wholesaler distributor to maintain such stocks as part of the contract with him or hold stocks itself (and in that event, avail of the assistance of the Food Corporation of India to the extent it is available) or a combination of the two with some suitable level of stock to be maintained by the distributors in various centres of consumption and also a minimum level of stock to be maintained by the State Government in such centres or convenient distribution points or enter into an arrangement with such salt producers as Hindustan Salts Limited or State Public Sector Salt producers and assist such producers to act as major distribution agencies in that State. The options considered most suitable by the State Governments may vary depending on local situations and performance of their wholesalers and distributors; but, it appears to the Committee that it would be prudent for these state government to hold some minimum stocks at critical centres possibly with the assistance of the Food Corporation of India and uch producers as Hindustan Salts Ltd. and where no warehousing facilities exist, erect suitable facilities for which financial assistance should be available from financial agencies. In establishing the requisite level of stocks in various centres of consumption, the State Government should consult the Department of Salt and the Railways so as to take into account the merits of accepting full rakes or part rakes to facilitate rail movement.

(As stated earlier in this chapter, to ensure that salt reaches the correct destinations, railwagons allotted should be booked by the authorised distributor where necessary, directly in the name of the State Government and the State Government must exercise some degree of vigilance to ensure that the transit time of the wagon from the salt supply source is reasonable and that there is no abnormal delay en-route).

5.12.3 The States with endemic goitre areas must exercise a particular check that rail movements to their areas consist of iodised salt in the requisite quantity and also check that the movement of non iodised salt to neighbouring areas is no more than what is required to meet their genuine demand and does not filter into goitre endemic areas.

5.12.4 All retailers must exhibit the fair price at which salt will be sold in their shops. This price must also be advertised in local newspapers from time to time so that consumers are fully aware what is the fair price they need pay. The minimum stocks that retailers must maintain should also be fixed by local State Government authorities and any apprehension of impending shortage must be notified to the local authorities well in time so that release from stocks held by State Governments and Distributors can be arranged well in time before stocks are exhausted.

5.12.5 In endemic goitre areas, both wholesalers (distributors) and retailers must accept the obligation to supply only iodised salt for edible consumption; the supply of (including entry except for legitimate purposes) non-iodised salt by them must be recognised as a serious offence (affecting as it does the health of the population) and severe action against offending distributors and retailers must be taken promptly.

It should be possible for the State Governments to organise the collection of samples and their testing in local schools and colleges to ensure that the salt sold is iodised and corresponds to the requisite specification. Sample testing units and methods must be evolved by the CS&MCRI production promoted by the Salt Department for such use by the State Governments. The State Governments concerned must also organise campaigns to educate their inhabitants on the importance of using only iodised salt.

Utilisation of Salt Golahs in Calcutta

5.12.6 The Salt Golahs in Calcutta owned and operated by the Salt Department, were designed to act as a storage and distribution centre for the supply of salt (including iodised salt) to West Bengal and also to the North Eastern part of the country. This particular practice was specially important when all the salt for the North Eastern States passed through Calcutta. However, with the movement of salt to the North Eastern States from the sources of supply of salt by an all-rail-route, these golahs will serve only the Calcutta/West Bengal area. To an extent these golahs are supplying certain quantities of iodised salt to the States in the North Eastern Region but this will cease when the iodisation capacity elsewhere is commissioned enabling all-rail-movement of iodised salt to these States.

Under the present Salt (Reserve Stock) Order, 1979, every importer of salt is required to store not less than 5% and not exceeding 15% (at the discretion of the Salt Commissioner) of each of the different varieties of salt imported by them into Calcutta by sea to the golahs. The present limit of the total reserve stock is 25,000 tonnes.

The present condition of golahs is deplorable and their maintenance clearly most unsatisfactory. The rail track and turntable to enable the movement of the salt stored in these golahs by rail has deteriorated to such an extent that it is highly doubtful if these can be renovated for use.

In view of the fact that these golahs will soon serve only the needs of West Bengal, the Committee considers that their use be determined for this purpose in consultation with the West Bengal Government. Clearly major renovation is necessary, but for the present this should be confined to the extent of this use.

The land and potential facilities available in this location appears to the Committee to be most valuable and can be far better utilised than at present. Therefore the Committee suggests that the Salt Department should immediately enter into a discussion with such agencies as the Food Corporation of India, the Jute Corporation of India and the West Bengal Government to explore how these facilities can be more effectively and remuneratively utilised.

There is also some equipment in the Golahs such as weighing machines and the Salt Department should discuss the possibilities of sale of these to the West Bengal Government or others so that it is no longer burdened with such matters.

Others

5.12.7 The Committee was also informed that despatches of salt were often delayed by the non-receipt of bags from the nominees of the State Governments. The State Governments should be advised that their arrangements with their nominees must permit the provision of bags by the salt producers if their nominees are unable to supply bags in time : this is necessary to ensure that supplies were as schedule and that rail wagons were according to allocation.

CHAPTER VI—COSTS AND PRICES

6.0 The Salt Experts Committee (1950) had analysed the cost of production in major salt producing areas and had recommended that the ex-works prices of marine salt should not exceed Rs. 13.61 to Rs. 20.41 per tonne and that of inland salt Rs. 11.91 to Rs. 15.31 per tonne. These prices pertained to salt of a purity of 96 to 98% NaCl.

6.1 At present, there is no control on the prices of salt except on salt despatched by sea from the West coast and Tuticorin to Calcutta. For such despatches the prices are statutorily controlled and were first fixed in 1972 under the Defence of India Rules, 1971 at the following levels :

	Rs. per tonne excluding the price of bags	
	Uncrushed salt	Crushed salt
From Tuticorin Ex-works	22	25
From West Coast (F.O.B.)	30	33

In September, 1977 the above levels of prices were fixed under the Essential Commodities Act, 1955.

In actual practice while these prices were adhered to till 1976, the prices charged in 1977 and thereafter are known to be much higher. Though the prices actually charged have continued to substantially exceed the controlled price in the last three years, no legal action has been taken against salt manufacturers who have continued to contravene the Essential Commodities Act, 1955, which notified the controlled price of salt in 1977.

Salt producers have sought the removal of any price control on sea despatches to Calcutta. On the other hand, the West Bengal Government has suggested that all the salt manufactured in the country should be brought under price control.

6.2 At the request of the Committee, a cost-price study was conducted by the Bureau of Industrial Costs and Prices. 52 salt manufacturing units were selected by the random sampling technique, distributed over the major producing areas—Gujarat, Tamil Nadu, Rajasthan, Andhra Pradesh, Orissa, West Bengal and Maharashtra. Some of the selected units had to be dropped from the study since it was found that they did not maintain record of suitable data to enable meaningful analyses of their costs. Certain of these units were in the process of development and their costs at the current stage of their operation were found to be unrepresentative. A few of the units selected produced salt for captive consumption for the production of other chemicals and these too were not representative. The difficulties encountered in collecting and analysing the data of manufacturers in the non-licensed sector were found to be insuperable and no progress in this could be made. With the deletion of such units, the data of altogether 35 salt manufacturing units was analysed : these analyses entailed visits by the teams of the Bureau of Industrial Costs and Prices to each of these units. The summary statements of costs of production, fair ex-works price and actual realisation are set out in Annexures 6.1 to 6.6 and are summarised below :—

TABLE 6.2—*Costs & fair price of salt—1978*

(Rs. per tonne)

GUJARAT :	Jamnagar 1	Bhavnagar 2	Dhrangadhra 3	Kharaghoda 4
No. of Units				
Fair ex-works selling price	27.05	33.33	22.29 to 40.62	22.17 to 40.84
Labour wages per tonne	6.57	7.98	17.50 to 18.25	17.50 to 18.25*
Energy cost	2.39	2.14	—	—
Sales realisation	29.55	39.86	20.00 to 71.45	21.00 to 40.24
Weighted average fair selling price	32.75			
Weighted average sales realisation	35.04			

TAMIL NADU :	Covelong	Vedaranyam	Tuticorin
No. of Units	1	4	4
Fair ex-works selling price	66.29	20.97 to 26.13	24.51 to 76.39
Labour cost	30.00	5.00 to 5.80	6.07 to 46.50
Energy cost	6.58	1.20 to 1.50	3.19 to 4.75
Sales realisation	80.00	20.00 to 22.50	25.00 to 100.00†
Weighted average fair selling price	66.29	23.00	38.95
Weighted average sales realisation	80.00	21.91	63.04

* Price rate including Wages & Energy.

† Cooperative Society, Arumuganeri.

TABLE 6.2.—*contd.*

RAJASTHAN :	Didwana	Kuchaman City	Phalodi
No. of Units	1	2	1
Fair ex-works selling price	54.29	51.77 to 61.46	49.81
Labour cost	12.48	14.01 to 19.62	7.98
Energy cost	0.90	2.72 to 4.21	3.20
Sales realisation	55.30	68.97 to 82.16	63.52
Weighted average fair selling price	54.04		
Weighted average sales realisation	56.51		

MAHARASHTRA :	Bhavandar	Thana	Wadala
No. of Units	2	1	1
Fair ex-works selling price	52.23 to 56.08	47.26	51.55
Labour cost	17.36 to 33.33	23.33	21.45
Energy cost	0.80	1.31	0.85
Sales realisation	80.00 to 100.00	95.00	125.00
Weighted average fair selling price	51.01		
Weighted average sales realisation	102.38		

EASTERN REGION :	Andhra Pradesh		Orissa	West Bengal
	Iskapalli	Naupada	Ganjam	Contai
No. of Units	2	1	4	2
Ex-works fair selling price	41.33 to 42.64	34.45	44.00 to 52.55	119.33 to 145.48
Labour cost	22.62 to 23.74	19.65	23.57 to 34.88	32.34 to 34.53
Energy cost	5.30 to 7.68	1.52	0.89 to 4.87	9.60 to 12.61
Sales realisation	65.00	53.32	48.40 to 81.58	134.38 to 166.75
Weighted average fair selling price	39.25		44.93	141.39
Weighted average sales realisation	61.01		79.81	161.69

6.3 The above data show that there are significant variations in the cost of production of salt within each salt producing region and between regions. Such variations arise from several causes. Certain of these, such as the source of brine, duration of these season and the yield of salt from brine, are outside the control of salt manufacturers. The variations in these and, therefore, in the yield of salt and its cost of production can be significant. There are other factors too. The cost of production in salt works of 100 acres tends to be high because apart from the higher cess paid, these salt works deepend on hired labour and wages paid are generally much higher than in the salt works of a smaller holding. The cost of the production of cooperatives is not less since they also pay high wages which can reach Rs. 20 per day. The cost of production of small holdings appears low on account of the lower cess (below 10 acres no cess is paid at all) and lower wages.

6.4 There is also considerable variation in the sales realisation and this arises to an extent from their financial position. Some salt works do not have the financial capacity to hold substantial stocks and, therefore, they have to sell their production quickly thereby realising a lower price. Others are able to insure against distress sales by entering into long term agreements with industrial consumers. Difficulties in transportation have also affected the sales realisation of salt works in a varying degree.

6.5 As pointed out earlier, the control on the price of salt is restricted to the quantity despatched to Calcutta by sea and this has averaged about 2,22,000 tonnes year, which is equivalent to about 3% of the total domestic consumption of the country, although it constitutes slightly over 50% of the domestic consumption of West Bengal. The price of this salt at source as a percentage of the delivered cost of salt shipped to Calcutta by the use of coastal shipping is barely 11.21% to 12.75% (from the sources in Gujarat and Tuticorin respectively).

Margin Between Ex-works Prices and F.O.R. Prices

6.6 The Committee has made an attempt to analyse the price buildup in the distribution chain. A rough analysis of the price buildup in 1978 from the ex-works point to the rail head for despatches to consuming points in Meghalaya (for domestic consumption) is tabulated below :—

TABLE 6.6—*Ex-works price & F.O.R. rail head price of salt despatched to Meghalaya*

(figures in Rs./tonne)

	Source	
	West Coast (Gujarat)	Tuticorin (Tamil Nadu)
Ex-works	35.00	40.50
Cost of bags	40.00	40.00
Cost of filling, loading into truck, unloading & loading in railway wagons	4.60	5.00
Cost of transportation from works to railway siding	9.50	9.50
Sub-Total	89.10	95.00
Actual F.O.R. price charged	200.00	200.00
Difference	110.90	105.00

It is possible that the cost of filling, loading into trucks, unloading and loading in railway wagons and the cost of transportation from the salt works to the railway siding are slightly understated. Nevertheless the prevailing margin between a fair F.O.R. price based on the sales realisation of the salt works and the actual F.O.R. price charged by wholesalers and distributors is excessive. (Here the Committee also notes that margin is very much higher than the margin between the likely ex-works fair price and ex-works market price charged by salt manufacturers). The Committee was informed that this margin represents the premium available on the allotment of railway wagons. In the market, railway wagon allotment or booking documents (forwarding notes) obtained by salt manufacturers are frequently auctioned and the margin is shared between salt manufacturers, local purchase agents of wholesalers (authorised by the State Governments to purchase salt for their states) and wholesales. The present system of issuing forwarding notes only to salt manufacturers is, regarded by several salt wholesalers as contributing to this obnoxious practice. It is singularly unfortunate that this malpractice has continued without any analysis by the Department of Salt or consuming State Governments.

Wholesale and Retail Prices

6.7 There have been frequent complaints that wholesale and retail prices have moved very erratically in certain States located for away from the sources of supply of salt and sharp increases have taken place in areas to which road or rail transportation is curtailed and smooth transportation often hampered by restrictions imposed on movement. The Committee requested the State Governments to supply data on movement of wholesale and retail prices in the major centres of consumption and to analyse the reasons for erratic movement in wholesale and retail prices. Unfortunately few states were able to supply the detailed data sought. Data available with the Department of Salt are also inadequate for any accurate analysis of these aspects. Such data as are available are set out in Annexure-6.7, but these do not reflect the much more erratic behaviour of retail prices in small inland consumption centres.

6.8 The pattern of movement of retail prices in various consumption centres in recent years to generally as follows :—

6.8.1 The margin between low and high retail prices is high :

in Assam (≥100%), Tripura (≥50%), Manipur (30%),
Arunachal Pradesh (≥100%), Moghalaya (≥50%),
Mizoram (≥100%) & Bihar(≥75%).

6.8.2 There is a general trend that the prices in the above States start to increase around March; just before the onset of the monsoon, except in Bihar where this increase tends to commence around June/July which is when the monsoon in that State sets in. In discussion, these State Governments pointed out that price increases in inland centres of consumption were often much sharper than indicated above for the State as a whole.

6.8.3 More detailed data on the movement of wholesale and retail prices (1978) were collected by the Committee for a few centres of consumption and these are set out below :—

TABLE 6.8.3—*Price breakup of salt in Meghalaya and Calcutta*

(figures in rupees)

STATE :	Meghalaya			West Bengal			
PLACE	Shillong	Tura	Jowai	Calcutta			
Mode of transportation	Rail	Rail	Rail	Sea	Rail	Rail	Rail
Source of salt	Jamnagar	West Coast		Tuticorin	Gandhidam	West Coast	
Cost of salt FOR (75 Kg. bag)	15.00	13.00	16.50	17.75	17.75	17.75	17.75
Freight and handling (75 Kg. bag)	12.07	17.95	18.28	13.02	11.32	8.71	8.88
Profit margin (75 Kg. bag)	1.50	1.50	2.00	N.A.	N.A.	N.A.	N.A.
Wholesale price (75 Kg. bag)	28.57	32.45	36.78	30.77	29.07	26.46	26.63
(Fair wholesale price per kg.)	(0.38)	(0.43)	(0.49)	(0.41)	(0.39)	(0.35)	(0.36)
Retail profit margin (75 Kg. bag)	2.01	1.50	2.00	N.A.	N.A.	N.A.	N.A.
Fair retail price per kg.	0.40	0.45	0.52	..	..	..	..
Market Price per Kg.							
Wholesale price	0.32/0.60	0.43/0.60	0.27/0.34		0.29/0.31		
(Per tonne)	(320/600)	(430/600)	(270/340)		(290/310)		
Retail price	0.40/0.90	0.60/0.80	0.40/0.50		0.52/0.55		
(per tonne)	(400/900)	(600/800)	(400/500)		(520/550)		

N.A.—Not available,

Ex-works Prices, Margin between Ex-works and F.O.R. Prices Wholesale and Retail Prices.

6.9 To summarise the analyses set out in the preceding paragraph, *very roughly* in 1978 the *excess* margin in various stages of sales and distribution worked out as follows :—

Ex-works :

Rs. 2.25/tonne in Gujarat.
Rs. 13.71/tonne to Rs. 24.09/tonne in Tamil Nadu.
Rs. 2.47/tonne in Rajasthan.
Rs. 51.56/tonne in Maharashtra.
Rs. 31.75/tonne in Andhra.
Rs. 34.98/tonne in Orissa.
Rs. 20.30/tonne in West Bengal.

It is apparent that prices in the relatively low salt producing states are set by the price at which salt from the larger producing states can reach consumers in that area; the larger producing states that establish the level of prices in other low salt producing states are Gujarat, Tamil Nadu and Rajasthan.

Ex-works/F.O.R. margin : ⩽Rs. 105 to Rs. 109.90 per tonne.

Wholesale margin in North Eastern States & West Bengal

⩽Rs. 220 per tonne in certain areas at certain times.

Retail margin in North Eastern States and West Bengal

Rs. 200 to Rs. 300 per tonne, increasing upto Rs. 600 per tonne in certain areas at certain times.

This analysis, approximate though it be, indicates clearly that the points at which excessive margins are realised leading to unnecessarily high consumer prices are in the system of allotting rail wagons, wholesaling and retailing. Compared to the excess margins available in transactions at these points, the excess margin realised in sales by salt manufacturers is insignificant.

It is in this context, the Committee has endeavoured to formulate its recommendations which are set out in the succeeding paragraphs.

Ex-works Price

6.10 In view of the significant variation in the cost of production of salt within each salt producing region and between regions, many of which arise from factors outside the control of manufacturers (quality of brine, duration of the season etc. all of which are substantially influenced by the weather which affects salt manufacture in a varying manner), the Committee does not consider it is feasible to fix ex-factory price of salt manufactured in the thousands of salt factories in the country.

At present, the control on the ex-works price of salt is restricted to the quantity despatched to Calcutta by sea from the West Coast and the Tuticorin area. The quantity affected is about 2,22,000 tonnes which is equivalent to about 3% of the total domestic consumption of the country although it constitutes slightly over 50% of the domestic consumption of West Bengal. The price of this salt as a percentage of the delivered cost of salt shipped to Calcutta by coastal shipping is 11.21% for Gujarat and 12.75% for Tuticorin. The current level of fixed prices has not been observed by the manufacturers for the last three years and the analysis of the cost of production of salt in 1978 in the salt works on the West Coast and Tuticorin indicates that these prices (fixed in 1972) are too low. The cost of production of salt and fair ex-works price is affected by a large number of intangible factors the more important of which are outside the control of salt manufacturers. It is also clear that a change in the ex-works price of salt will not materially affect the consumer price of salt in West Bengal. There is no evidence of any cartelisation among the producers in Gujarat or Tamil Nadu nor is there any reason to believe that this is possible or likely. Therefore, the Committee considers that no purpose is served by continuing a price control system which is exceedingly restricted in scope with barely 3% of the total domestic consumption only within its purview and which has been openly and continuously flouted for the last three years. Nevertheless, the Department of Salt must initiate a price surveillance system so that it can advise all State Governments the fair price at which purchases can be made from different producing areas and actively assist the State Governments to procure salt at fair prices. The Department of Salt should also be most vigilant in ensuring that no form of cartelisation takes place and that salt producers do not take advantage of what may be temporary situations of difficulty arising from the shortage of wagons, the lack of adequate stocks in consuming areas (this latter is specially important in ensuring a suitable counterweight to unreasonable prices that can be charged by salt manufacturers). The Department of Salt must also assist in facilitating long term price and supply arrangements between deficit States and suppliers in surplus State specially Central and State Public Sector salt manufacturers and joint sector manufacturers in Gujarat and Tamil Nadu to enable deficit States to avoid disruption in supplies and payment of an unreasonably high price : Chapter-X indicates that the production of such projects can be substantial and can greatly assist the deficit States in this matter.

Ex-works F.O.R. Margin

6.11 Quite apart from the ultimate solution of ensuring ready and adequate availability of rail wagons and rail transportation, this excessive margin can be greatly reduced by allotting wagons to State Governments for movement of salt purchased by wholesalers nominated by the State Governments (this aspect is dealt with in Chapter V also) combined with much greater vigilance on the part of the State Governments in scrutinising the purchases and margins in these charged by the wholesalers selected by them.

Wholesale and Retail Prices

6.12 In the Committee's view, the key to preventing the large prevailing fluctuations leading to excessive prices in areas to which transportantion is difficult.

is to arrange for the maintenance of suitable stocks in locations from which distribution can be undertaken quickly. This, it is possible to do by stipulating that wholesalers (private as well as public) maintain a certain level of stocks in nominated centres. It will be recalled that the H. M. Patel Committee had recommended that stocks maintained by distributors must not fall below a level equivalent to 3 months consumption in their respective areas. The precise level of stocks that must be maintained will have to be determined by each State Government based on its experience but in estimating this, the Department of Salt together with the Railway Board (as also the Director General of Shipping in regard to despatches to West Bengal in coastal vessels) should offer their recommendations based on an analysis of the likely problems in transportation. Large fluctuations in wholesale and retail prices are specially evident in East and North East Bihar, North Eastern States (Assam, Meghalaya, Manipur, Mizoram, Arunachal Pradesh, Nagaland and Tripura) and West Bengal and increase in these appears to coincide with the onset of the monsoon. In these areas, it appears that the maintenance of stocks at key centres of distribution within the State equivalent to about 4 months' consumption should help to greatly dampen the extent of fluctuation. (The Committee is led to believe that some warehousing space for the maintenance of such stocks if held on the State Government account can be made available by the Food Corporation of India—see also Chapter VI). This stocking has to be combined with much greater surveillance by the Civil Supplies Departments of the State Governments of the movement of wholesale and retail prices so that releases. It should also be made to check significant price increases. It should also be combined with contractual obligations negotiated with wholesalers (in some States with distributors) that, as part of the agreement with them at the time of their selection and nomination, they will ensure that the retail prices will not exceed ceiling figures worked out as reasonable for various centres of consumption.

Difference in Freight on Coastal Movement of Edible Salt and Rail Movement of Edible Salt to West Bengal

6.13 As pointed out earlier, the Government of India has restricted the rail movement of salt from salt producing areas to West Bengal to edible salt only at a rate of no more than 25 wagons per day equivalent to 1,44,000 tonnes per annum with the balance to be moved by coastal shipping from the West Coast and the Tuticorin area. This is presumably on the basis of the most cost effective use of all modes of transport. However, the freight differential in the two modes of movement of edible salt has increased sharply in recent years as follows :—

(Rs. per tonne)

Freight & other charges	Gujarat		Tuticorin	
	By Sea	By Rail	By Sea	By Rail
1. Freight & bunker charges etc. etc.	117.05	—	108.80	—
2. Railway freight, including surcharge & transhipment . . .	—	133.86	—	135.60
3. Cost of salt i.e. ex-work fair selling price	35.00	35.00	40.50	40.50
4. Other charges including cost of bags and handling charges at port or rail head	142.66	57.59	157.77	58.00
Total	294 71	226.45	307.07	234.10

सत्यमेव जयते

This has led to two important consequences. The fact that a major portion of edible salt reaches Calcutta by sea at a price Rs. 294.71 per tonne from Gujarat and Rs. 307.07 per tonne from Tuticorin, higher than the quantity moved by rail, results in wholesale and retail price levels of all the edible salt consumed in Calcutta and nearby consuming areas to be based on the higher priced salt reaching Calcutta by coastal vessels. The second consequence is that consumers in Calcutta and nearby areas have to pay a much higher price than the consumers in neighbouring States. The Committee is impressed by the fact that although in national economic terms the modes of movement of edible salt stipulated by the Government of India may be cost effective, it imposes an unreasonable burden on the consumers of Calcutta and nearby areas vis-a-vis consumers in other States Therefore, the Committee recommends that this freight differential be compensated by corresponding payments from out of the Salt Cess Funds or other such funds such as the Coal Surcharge Fund. In making this recommendation, the Committee wishes to point out that the 'opportunity' cost of moving salt by coastal vessels returning empty from Tuticorin (to which port they have carried coal from Calcutta) is virtually nil. However, while making this recommendation, the Committee must emphasise that this must be synchronised by a much greater vigilance on the part of the State Governments in ensuring that the benefit of this (which loads to a reduction in the price of edible salt) is passed on to the consumer and not permitted to be absorbed by an increase in the effective wholesale, retail and distribution margins actually realised by traders.

Freight Equalisation

6.14 The Committee has been specifically asked to consider the feasibility of freight equalisation for salt. The Marathe Committee on the "Freight Equalisation of Commodities" had set four criteria to judge the merits of applying this scheme to various commodities. Edible salt fully meets one of these criteria; it is essential and is for mass consumption. But though it is a vital component in the consumption basket of an average citizen and of the weaker sections of the population, it accounts for 0.47% of the total per capita consumption expenditure. Freight on edible salt accounts for 10% to 23% of the final consumer price in inaccessible areas and falls to below 10% where retail prices rule at very high levels at times of shortage, generally during the monsoon, as is indicated in the preceding paragraphs in this chapter, for a variety of reasons, the market for salt is far from perfect and a reasonable degree of stability in prices (that must also be fair) is still to be attained. The present margins, ex-works to F.O.R., wholesale and retail are frequently exorbitant and also fluctuate very sharply. Therefore, in this situation it is far from certain that the benefits arising from any system of freight equalisation will be actually transmitted to the final consumer. There are other problems also. There are about 4,000 salt works and their cost of production and ex-factory prices vary a great deal within each salt producing region and between regions. It is virtually impossible and also exceedingly expensive to control the release from each salt works for each destination. Moreover, the movement of salt by road is large and has been increasing in recent years.

Therefore, for all these reasons, the Committee does not consider that a freight equalisation scheme for salt is feasible & likely to lead to any significant advantage to consumers at this stage.

सत्यमेव जयते

CHAPTER VII—SYSTEM OF LICENSING OF SALT WORKS, EXEMPTION UPTO THE LIMIT OF 10 ACRES, SALT CESS FUND, OPERATION OF THE SALT CESS ACT & RULES, CODE OF PRINCIPLES FOR ASSISTANCE FROM THE SALT CESS FUND

7. 1 The Committee has considered all these together in view of its approach which will be set out later in this Chapter.

7. 2 An analysis of the cess receipts and expenditure is set out below :

TABLE 7.2—*Cess receipts and expenditure*

(figures in Rs./million)

Year	Cess collected	Other receipts	Expenditure on Administration	Expenditure on development & labour welfare	Loan etc.	Unspent amount that has accrued to the Central Government
1950-51	8.10	1.56	3.80 (46.9)	0.39 (4.8)	..	5.47
1960-61	8.30	1.63	3.15 (38.0)	2.26 (27.2)	..	4.52
1970-71	12.18	1.75	4.79 (39.3)	0.96 (7.9)	0.78 (6.4)	7.40
1974-75	12.34	1.86	5.92 (48.0)	0.95 (7.7)	0.25 (2.0)	7.08
1975-76	11.67	1.83	7.46 (63.9)	1.43 (12.3)	0.06 (0.5)	4.58
1976-77	11.32	2.00	7.17 (63.3)	1.51 (13.3)	0.55 (4.9)	4.09
1977-78	12.78	2.35	7.30 (57.1)	3.14 (24.6)	0.48 (3.8)	4.21
1978-79	13.30	2.82	7.31 (55.0)	4.59 (34.5)	0.46 (3.5)	3.76

Figures in brakets represent percentage of cess collected

It will be seen that almost 55% of the cess collected is spent on meeting the costs of administration which largely consists of the licensing of salt works, detailed and continuous check of the removal of salt produced in each of the about 4000 licensed salt works after weighment of all consignments of salts (except those in Gujarat where the self removal procedure has been adopted and where sample checks have to be made frequently) and collection of cess. Expenditure on development and labour welfare was negligible until 1974-75 : there has been a perceptible increase in the last two years to reach Rs. 46 lakhs in 1979 representing 35% of the total cess collected in that year.

7.3 The Committee has carefully considered the particular role of the Salt Department in the future. Prior to the independence of the country the role was largely one of policing all the sources of production to collect revenue and past practices and procedures, apparently justified on the basis of the collection of revenue, have continued although the actual revenue collected declined sharply. Immediately after independence the efforts of the Salt Department were almost wholly devoted to increasing the domestic production quickly to remove the shortage of this essential commodity with the result that outdated procedures have continued to be applied. As is evident from Chapter IV, there need be no serious apprehension of a shortage in the domestic production so that future efforts should be devoted to ensuring optimal production to meet the domestic demand of iodised and non-iodised salt in various parts of the country generating viable exports facilitating the adoption of improved cost effective technology, improvement in the quality of salt and streamlining the distribution of salt by the cheapest mode of transport. The Committee is convinced that the continuing intervention and engagement of the Salt Department in vexatious time consuming procedures for licensing, removal of salt from each licensed salt works and in the collection of cess has militiated and will continue to seriously militate against the future role defined above. It is this that guides the Committee in examining other feasible approaches.

7. 4.1 One possible approach is to extend the adoption of the self removal procedure in force in Gujarat to

all the other salt producing regions. However, this is considered difficult in other States where there are a much larger number of small salt works dispersed over a large area so that the supervision of the self removal procedure will also entail very high administrative expenditure albeit somewhat less than at present. Moreover, there has been frequent complaints that the self removal procedure has been abused and allegations are often made of collusion between salt manufacturers and the personnel of the Salt Department. Therefore, the Committee considers that the mere extension of the self removal procedure will not significantly improve the poor cost effectiveness of collecting the cess.

7.4.2 The total annual collection is so small Rs. 13.30 million, the costs of administration so heavy and the controversies between those that have to pay the cess and those that are partially or wholly exempt from this payment so many and fierce that the Committee considers that the quantum of the cess collected is not commensurate with the costs and total effort in its collection and therefore recommends that it should be removed altogether. Funds for development and labour welfare can be allocated to the State Governments as part of the plan allocation. There already are a number of financial institutions promoted by the State Governments that are able to finance the establishment of the salt works and these could readily extend their operations to grant the very small amount of loans currently extended from the Salt Cess Fund. Funds should also become available from the Agricultural Refinance and Development Corporation whose operations should be permitted to cover manufacture of salt. Elsewhere the Committee has envisaged a substantially larger outlay on development in the coming years to promote the adoption of improved technology and the quality of salt manufactured etc; but the levels of increased expenditure estimated are still small in relation to the scale of the operations of these financial institutions (as well as the Central financial institutions from whom funds can also be obtained for large investments). Therefore, the Committee does not consider that there are any special difficulties in adopting this alternative. Moreover, the Committee considers that there are particular merits in the State Governments taking the major responsibility for accelerating such investments in their States in view of the widely dispersed nature of the industry, with the Salt Department assisting the State Governments in preparing proper detailed plans and then monitoring the implementation of such plans to ensure that development proceeds satisfactorily.

The financial implications are a loss of Rs. 13.30 millions immediately. However, this can and must be substantially reduced with accelerated reduction of the large field staff of the Salt Department that is overwhelmingly engaged in the tasks of regulation and collection of cess etc. which also has genuine grievances in the matter of facilities for housing, transporation etc. the provision of which, to an extent justified, could further increase the costs of administration.

7.4.3 If, however, this recommendation is not acceptable and the Government of India considers that it is essential that the costs of such activities must be met from revenues that must be raised on the operations of the salt industry, then the Committee considers that the cess (better called development cess) be collected in such manner that it involves the least degree of administrative check and supervision which inevitably leads to high costs in this item of expenditure. The Committee has considered several alternatives. One is to merge the cess with the land revenue. This was found impractical since the yield of salt in different areas various enormously so that the impact of a uniform land revenue would bear unequally in different regions and sub-regions. Moreover, the yield of salt in each region or sub-region can vary enormously from year to year for reasons not within the control of the salt producers and a fixed land revenue will not reflect the variation in the profitability in the operations of the salt producers in contrast with the cess that is paid on the quantity produced and sold and could impose an unnecessary burden in the years when the production is seriously affected. Another alternative is to collect the equivalent of the total cess collected on the quantity of salt moved by rail and this levy could be collected by the railway station masters when issuing booking documents for rail wagons. In Chapter V of this report the Committee has recommended that rail wagon movements will be more or less confined to salt required for edible purposes until further rail wagons are avaliable to meet salt required for other purposes. In the near future, it is highly probable that the rail movement that takes place will be almost all of salt required for edible purposes. Therefore, the collection of a cess or levy on rail movement will bear almost exclusively on salt for edible purposes. This the Committee considered was not desirable. Another alternative would be to charge this development cess on salt used by large industrial consumers (producers of caustic soda and soda ash) and a levy of about Rs. 5 tonne of salt will be adequate to reach the present level of the cess collected: an increase in this to Rs. 10/tonne should prove adequate to cover also the freight differential between the movement of salt by coastal vessels and rail to West Bengal in case it is not feasible to pay the differential from the Coal Surcharge Fund or this fund does not prove adequate for this purpose. These levels of development cess will lead to an insignificant increase in the cost of production of these chemicals. On the other hand they can readily be neutralised: indeed the delivered cost of salt to these industries can be substantially reduced by success in streamlining the distribution arrangements leading to an increase in the movement of salt to these industries by rail. (This will also lead to the same result as in the preceding recommendation of the Committee in this matter in regard to a drastic reduction in the administrative staff and expenditure of the Salt Department). The levy of a development cess at the levels suggested will not distort the relative economies of different modes of transport.

In making the above recommendation, the Committee is conscious that this results in removing the advantage to certain categories—below 100 acres, below 10 acres and cooperatives, available in this regard at present. The Committee notes the report of the Manubhai Shah Committee that had recommended that these differentials in the form that they exist should be removed altogether and instead the cess be levied on a graded basis on the quantum of the production of each salt factory except that cooperative societies of salt manufacturers should be exempted from the cess altogether. This approach in regard to cooperatives evolved as a result of an assessment that the pooling of small salt works in a cooperative, run in a technologically efficient manner would lead to a more healthy and remunerative industry. In the light of the poor cost-effectiveness of collecting a cess on the basis of the production and sale of each salt producer and thereupon the particular recommendation made above, the Committee considers that such preferential treatment as is considered necessary to afford to cooperatives and small producers (and specially to cooperatives) can be accorded much more conveniently and at much lower administrative costs through the imposition of differential land revenue, assignment fee etc. and by extending softer terms for loans for development and grants for labour welfare etc. for which salt works in the non-licensed sector are not at present eligible. Here the Committee emphasises that according to the evidence given to it, the cooperative movement in the salt industry has been hampered by the fact that very small salt producers are already exempted from cess and therefore are unable to envisage a substantial advantage in joining a cooperative of such small producers. Therefore, the extension of much softer terms of loans for the development of cooperatives of small producers should provide a much greater impetus to the promotion and proper functioning of the cooperatives than hitherto. The other advantage of promotion of such cooperatives is that such matters as proper collection of bitterns and remunerative recovery of by-products are evident and will be further reinforced by the above approach.

(Shri S. C. Aggarwal, a Member of the Committee dissents with the recommendation contained in paragraphs 7.4.2 and 7.4.3 and recommends that the present system of collection of cess should continue. His dissenting note is appended to this report).

Operation of the Salt Cess Act and Rules

7.4.4 Acceptance of the above recommendation will entail a large number of revisions in the Salt Cess Act and Rules especially in such matters as checks by the Salt Department of the weighment at various points, return of consignments that have failed to accord with the existing rules to the salt works for reweighment etc. All that need be done is to stipulate that all salt works must stamp on the bags the weight of the salt contained, name of the manufacturer and the specification of the salt contained, and the Weights and Measures Organisation will be responsible for checking on the correctness of the stamped/loaded bags etc. Some of the other more important modifications suggested are as follows :

> Salt should be permitted to be removed and moved in loose condition in trucks (and also in open railway wagons in the dry months if suitable arrangements are made by the railway authorities) for edible consumption provided it is wrapped and covered suitably to prevent contamination by dirt, dust etc. The Salt Department should stipulate the types of wrappers and covers acceptable;
>
> there need be no restrictions on the hours during which salt can be moved out of the salt works.

Collection of Land Revenue of Central Lands Used for the Manufacture of Salt and Protection of these Central Lands

7.5 The Committee considers that this land revenue charged on the land belonging to the Central Government can be collected by the State Governments and credited to the Salt Department so that no separate staff of the Salt Department need be utilised for this task, and the attention of the staff of the Salt Department then concentrated on the much more important tasks of promoting the adoption of improved technology, reduction in costs, rapid increase in domestic production to meet the domestic requirement and to capture export markets, rationalisation in speedy rail movement etc. rather than that their attention be diverted by such peripheral routine matters. However, the Salt Department fears that based on its past experience, the State Governments will be rather tardy in discharging this task. Nevertheless, the Committee recommends that its approach be accepted in principle and that the Salt Department and the Government of India should hold discussions with State Governments to determine how the State Governments will be able to take over this responsibility and discharge it with promptness.

The Salt Department is apprehensive that vacant land belonging to the Central Government within the jurisdiction of the Salt Department may be encroached upon unless it continues to provide security staff to protect this vacant land. The total extent of such vacant land is about 12,500 acres. Only some part of it is suitable for the cultivation of salt and the Committee suggests that this be licensed for the production of salt immediately. For the rest, the Salt Department should consult other Central Government Departments to find out if they have use for it and such land as is not likely to be used to them can be offered thereafter to the State Governments on reasonable terms failing which it should be auctioned.

Licensing

7.6 All licensing is carried out by the Salt Department. The Committee received a large number of complaints that this leads to long time delays.

In the case of salt works on land belonging to the State Governments, schemes for the manufacture of salt are first scrutinised by the State Government concerned which issues a no objection certificate and then the scheme is examined by the Salt Department before it issues a licence for the manufacture of salt. The Committee notes with interest that very rarely (if at all) are schemes approved by the State Governments, rejected by the Salt Department.

In regard to salt works on private land and land owned by the Central Government, applications have to be made directly to the Salt Department. The examination carried out by the Salt Department generally consists of verifying the legal access to the land, the legal title to the land proposed for the production of salt, technical features and viability. Here too, significant revisions or refusals to grant a licence are exceedingly rare. In these circumstances, the Committee considers that time delays and vexatious correspondence can be eliminated by delegating authority to and assisting the State Governments to issue licences on behalf of the Salt Department after examining the schemes proposed in accordance with guidelines that the Salt Department should formulate for adoption by the State Governments. These guidelines should include the stipulation that all licensed manufacturers must have supervisors properly trained in the technology of the manufacture of salt and that the layout must include the proper flow and storage of bitterns so that they can be collected readily and utilised either by the salt works or by others for the recovery of valuable by-products. This may require improving the quality of technical skills within the State Governments and this the Salt Department should be able to assist by suitable deputation of its officers to the State Governments. To protect lands belonging to the Central Government which are suitable for the manufacture of salt, it will prove necessary to obtain the specific permission of the Salt Department before the issue of a licence by the State Government on behalf of the Salt Department. To further ensure that these guidelines are followed properly and that the production of salt is accelerated, the Committee recommends that the State Governments should form salt licensing committees which must include a representative of the Salt Department (the Assistant Salt Commissioner) and will consider all applications for a licence to manufacture salt. Such licensing committees must meet regularly and must ensure that all applications for a licence are considered promptly and decisions taken within 60 days of the receipt of the applications.

Some members express the apprehension that the delegation of this authority will emasculate the authority of the Salt Department in ensuring that the production of salt continues to increase to meet the demand of the country and to its equitable distribution to States that are deficit in this essential item. The majority members of the Committee do not share the fears of the other members. They consider that there need be no apprehension of any shortage of salt provided the efforts to accelerate the production of salt, adoption of improved technology etc. are enlarged as recommended in this report and in which the Salt Department will have to play a much more dynamic role than hitherto. Mere licensing will not lead to an acceleration in the production of salt. Moreover, the State Governments are (and should be expected to be) equally interested in accelerating the production of salt and are under increased pressure from their potential producers to licence more acreage, specially in the deficit states. The presence of a senior representative of the Salt Department in the state salt licensing committees should ensure that the guidelines set by the Salt Department in the licensing of new salt works are properly satisfied and the targets set by the Salt Department are met. (One possibility is that the actual licence can be issued by the Deputy or Assistant Salt Commissioner who will be a member of this State Licensing Committee: this suggestion can be pursed if there are legal problems in the issue of licences under the authority that can be delegated to them by the Salt Department). The present and future growth of Hindustan Salts (that account for 8% of the total domestic consumption or edible salt) provides an important instrument to ensure that no salt producing region of the country can create an artificial shortage of salt, this is further reinforced by the stipulation of minimum level of stocks at the salt producing point and at points of consumption in deficit States and by industrial consumers. The distribution pattern—which has been shown to be crucial factor in causing recurrent shortages in deficit States—has to be worked out by the Salt Department and instructions on rail movement and allocation of rail wagons will continue to be worked out and directed by the Salt Department.

(Shri S. C. Aggarwal, Shri K. L. Sahni and Shri S. K. Sarkar dissent from this recommendation. The dissenting notes of Shri Aggarwal and Shri K. L. Sahni are appended to this report. Shri Sarkar considers that the retention of this licensing function with the Salt Department enhances its ability to ensure a suitable increase in the production of salt and its equitable distribution in the country.)

Development, Labour Welfare Etc. and Loans for Development

7.7 As stated earlier, the total expenditure on this was negligible until 1976-77 and it is only thereafter that it increased to reach the level of Rs. 46 lakhs in 1978-79. The Committee has received complaints from every quarter of the tardy manner in which schemes are examined, processed, approved and thereafter implemented. A road approved in 1969 is still under completion. The Committee is not convinced that a Central organisation such as the Salt Department is best suited to deal with such matters compared to the State Governments that are much closer to the scene and therefore more conscious of the urgency of these problems. The State Governments also have a number of financial and other institutions that, with the introduction of some expertise in salt manufacture, are better equipped to scrutinise schemes and grant approvals quickly : the State Public Works Departments can probably execute the relatively minor works in remote areas much more effectively than the Salt Department working through the Central Public Works Department. Moreover, the assistance in providing of education facilities, application of the Minimum Wages Act, provision of welfare facilities etc. can also be better dealt with by the State Governments. Therefore, the Committee recommends that all programmes of this type should be left wholly to the State Governments to carry out. Nevertheless the Salt Department must ensure and assist the State Governments to work out time phased comprehensive schemes and then monitor their implementation.

Suitable provision will have to be made for funds to enable the State Governments to discharge this responsibility. The funds spent at present are small but they may well have to be increased in the future; even so these are highly unlikely to exceed Rs. 1.5 to Rs.2.0 crores per year. The Committee considers that these should be provided under the central plan directly to the State Governments and to their financial and industrail investment Corporations. (The Salt Department's advice on this will naturally be available to the Planning Commission when these outlays are discussed.)

Licence Conditions

7.8.1 At present, licences are granted for twenty years. The Committee received a number of representations that this period was too short to earn a fair return on the expenditure that has to be incurred in developing the area licensed in a rational manner, specially when the area comprises marshy land. The Committee accepts that in the circumstances prevailing in land suitable for the production of salt which does indeed comprise low level and frequently marshy land, the period of twenty years can be considered short and therefore recommends that the period be extended to forty years. However, the Committee points out that the licence conditions stipulate rightly, that the entire area licensed must be worked every year and that this does not appear to be actually practised. Therefore, while recommending that the licence period be extended to forty years, it recommends that the licence condition stipulating that the entire area licensed must be worked every year must be strictly enforced and licensees found not to be fulfilling this important condition penalised suitably and in suitable cases, the licences revoked.

7.8.2 The Committee also received a number of representations about the difficulties faced by the licensee in the transfer of licences due to inheritance, gift, sale etc. The practice followed varies from State to State. The Committee has considered these representations and agreed that the Salt Department and the Government of India must persuade the State Governments to adopt uniform simple procedures and in this context suggests as **follows :**

> *Transfer of licence due to inheritance, gift and mortgage*—the legal heirs must produce a death certificate and a legal heirship certificate obtained from a competent authority or succession certificate obtained from the court of law and submit a joint application for the transfer of the licence in their favour and for the inclusion of their names in the lease deed originally executed by the deceased. On receipt of these documents, the licensing authority shall have a notice published in the local newspapers giving the details of the salt pans, a summary of the case and the names of the proposed transferees and invite objections to the transfer. If no objections are received within one month of the publication, then the licensing authority will proceed with effecting the transfer of the lease and the licence. All expenses incurred in the publication of this notice in the local newspapers will have to be borne by the transferees by depositing the amount in advance;
>
> in the case of a transfer by gift, the beneficiary shall produce the gift deed or mortgage deed. The beneficiary of the mortgage deed shall produce the mortgage deed executed by the licensee and an application from the licensee confirming the mortgage.
>
> *Transfer of licence due to sale*—sale of leasehold rights will be permitted in exceptional circumstances provided the licensee obtains the prior permission of the lessor for such sale. The formalities for the transfer of the licence will be as in the preceding paragraph.
>
> *Transfer of licence due to sub-lease*—this may be permitted in abnormal circumstances for a limited period not exceeding three years and on the merits of each case provided the licensee obtains the prior permission of the lessor and executes necessary agreements with the lessor agreeing to abide by the terms and conditions of the original lease executed by the licensee.

7.8.3 The licence conditions also include the maintenance of a minimum reserve stock, the manufacture of salt of prescribed standard, the maintenance of common service facilities such as brine supply channels etc. and the supply of statistical data. It is clear to the Committee that many of the conditions so stipulated are not enforced and so it recommends that the Salt Department studies with the State Governments concerned how these can be enforced satisfactorily. To check if these stipulations are being enforced the Salt Department could consider the selection of a statistically representative sample of salt factories which could be checked in this regard carefully each year.

Code of Principles

7.9 If the recommendation of the majority of the members of the Committee that the cess be abolished is accepted, then there will be no need for such a code which regulates the grant of financial assistance out of cess proceeds.

In case the Government of India does not accept the abolition of this cess, then the Committee recommends that the code be amended in the following manner :

> the existing provision in the code of principles that the beneficiary licensees should incur 5% to 7.5% of the cost of a certain category of works, should be deleted. Thus, while the contribution of the Salt Department remains at the stipulated figure, it will not matter where the balance of the contribution comes from;

for emergency works (generally caused by such abnormalities as floods or cyclones), the Deputy Salt Commissioners can sanction works costing Rs. 10,000 in each case and the Salt Commissioner can sanction works costing Rs. 25,000 in each case but such sanction must be in accordance with the guidelines that must be approved by the Central Advisory Board.

the actual sanction so issued will be communicated to both the Regional and Central Advisory Boards for their information;

the ceiling limit of authority for sanctioning works costing Rs. 1 lakh in each case on the recommendation of the Regional Advisory Board should be increased to Rs. 5 lakhs;

the Salt Commissioner should be authorised to sanction works exceeding Rs. 5 lakhs but not exceeding Rs. 10 lakhs in each case on the recommendation of the Central Advisory Board and without seeking the approval of the Government of India;

all works costing above Rs. 10 lakhs in each case will first be considered by the Central Advisory Board and thereafter sanction of the Government of India to this expenditure will be sought;

the Regional Advisory Boards must include representative(s) of the State Governments concerned and Asstt. Salt Commissioner(s).

Construction of Development and Labour Welfare Works

7.10 Whether it is the Salt Department or the State Governments that are responsible for undertaking and supervising the completion of such works (if the cess is abolished on the recommendations of the majority of the members to this and connected matters accepted, then the State Governments will have to undertake such works) past experience has shown that such works take an unduly long time to complete. The creation of a special cell in the Salt Department to design, supervise and execute such works does not appear to the Committee to be any solution. Given the frequently remote location of such works, it would be prudent of the Salt Department and the State Governments (which are finally entrusted with this responsibility) to avail of the services of public and private Engineering and Construction Organisations to design, supervise and execute such works since this should greatly accelerate their completion.

CHAPTER VIII—PROGRESS IN RESEARCH AND DEVELOPMENT, MODEL SALT FARMS RESEARCH STATIONS AND REGIONAL QUALITY CONTROL LABORATORIES

8.1 In their report submitted in 1950, the Salt Experts Committee made detailed recommendations on what technological improvements must be made in each region. The Committee endeavoured to check what analysis is available of the technological progress made in the manufacture of salt and is disappointed to find that no system has been evolved to measure this and few data are, therefore, available in this regard.

Model Salt Farms

8.2 In pursuance of the recommendations of the Salt Experts Committee, four model salt farms were set up in Wadala, Tuticorin, Shiroda and Sumadi. The farm in Wadala had to be abandoned as the land was required by the CPWD for erecting a housing colony. Records indicate that in others, technological data, record of experimental investigations and costs and benefit were not collected in any systematic manner even after a decade of operations. This together with the feeling that the production of salt has increased to exceed demand led to these model farms being disbanded around 1965.

An experimental farm was set up in 1964 by the CS&MCRI in Bhavnagar.

Future Technology Requirements

8.3 Chapter IV has set out a qualitative assessment of the technological improvements that appear feasible in various salt manufacturing regions of the country. There are also likely to be other types of changes that could lead to a demand for technology in other areas. Thus the specifications of salt for both human and industrial consumption need to be substantially improved. Special varieties of salt have to be devoloped and promoted. Mechanical harvestors, possibly in a small quantity, that are suitable for the conditions in the country, have yet to be successfully developed. The technology for the recovery of by-products from bitterns has to be continuously improved to deal with the varying quality of bitterns available in the country. Finally, the large number of workers in salt works have to be properly trained in the improved techniques that are established as cost effective.

Much of the technology is known specially to the Scientists of the CS&MCRI and some of the staff of the Salt Department. But what still remains to be determined and clearly established are the costs and benefits of the variety of technological improvements and choices in these in each of the salt producing regions and sub-regions in which there are significant variations in the quality of brine, soil condition, meteorological conditions, composition of recovered salt and bitterns.

Suggestions for Accelerating Technological Progress

8.4 The Committee considers that CS&MCRI is in the best position to galvanise the promotion and adoption of improved technology in cooperation with the State Governments that in view of the Committee's recommendations in Chapter VII will have the basic responsibilities for development in the industry and the Salt Department that will over see this development and monitor the progress.

The initiatives that the Committee considers which may prove effective in the future (and these too need to be evaluated periodically to determine their effectiveness) are as follows :—

preparation of feasibility reports for the establishment of new salt works or renovation; this assistance has been sought by several State Industrial Development Corporations and State Governments and selected experts of the Salt Department and the CS&MCRI can form a special group to undertake such studies and prepare proper feasibility reports;

instead of owning and operating model salt works, enter into arrangements with suitable salt works (Centre & State Public Sectors, Joint Sectors and others) in various salt producing regions and sub-regions to test improved methods and evaluate those in terms of quantified costs and benefits and arrange for salt producers to examine these in detail;

in cooperation with the State Governments organise development extension groups that can assist salt works to adopt improved technology that has been demonstrated to them as cost effective;

arrange greatly expanded programmes in the CS & MCRI's experimental salt works and in other suitable works in various regions and sub-regions to train managers and supervisors of salt works in improved methods of production; here, the objective must be in due course to train enough numbers so that each salt works in the country has atleast one supervisor who has been suitably trained (and again in due course the employment of a suitably trained supervisor could be made a condition for permitting the manufacture of salt;

admittedly with almost 4,000 salt works in the country the task is immense but nevertheless it should prove possible to use a number of training devices such as films, video equipments etc. to simplify and accelerate this programme to cover large numbers. There is also the possibility of utilising schools and colleges in salt producing areas to assist in this task and the Salt Department and the CS&MCRI must assist in developing suitable courses that can be introduced in such schools and colleges;

सत्यमेव जयते

in some fields of activity, the import of technology or design (such as for a suitable mechanical harvestor) need not be ruled out and the Salt Department in consultation with the CS&MCRI could take the lead in arranging this.

8.5. There is at present no detailed comprehensive programme of this sort and therefore, the Salt Department, the CS&MCRI and the salt producing State Governments should jointly work this out immediately, with the Salt Department taking the lead in coordinating the development of this programme and in its implementation. The Committee has not been able to estimate the likely budget for this activity but considers that funds for this can be made available from several sources such as the NRDC, CSIR, Plan Funds, State Governments and the Salt Department.

8.6 Certain other facilities also have to be created as follows :—

meteorological stations need to be set up in a number of salt producing regions which are not at present served adequately : the Salt Department considers that such stations need to be set up at the following locations :—

Tamil Nadu—Veppalodai, Vattanam, Kattumavadi and Markanam.

Andhra Pradesh—Pakala, Chinnaganjam, Pudimadaka and Vadacheepurapalli.

Orissa—Sumadi, Astrang.

Gujarat—Rajula City, Dhrangadhra and Maliya-Miyana.

Rajasthan—Phalodi, Sujangarh.

These meteorological stations need no sophisticated instrumentation and need only record such observations as maximum and minimum temperature, average relative humidity, average wind velocity, rainfall, number of days rainfall, rate of evaporation and tidal action.

The Committee has had a brief discussion with the Director General of Meteorology and is assured that these can be readily provided in a phased manner over the next two to three years. This must be pursued vigorously by the Salt Department.

The Committee considers it is impractical to set up more analytical laboratories manned and operated by the Salt Department to be set up in various salt producing areas to serve the non-licensed sector. Instead the Committee suggests that a concerted effort should be made in two directions. The first would be to press, possibly insist all the relatively large salt works, say above 100 acres, to establish suitable laboratories which in any case they should have for routine regular quality control without delay. The second would be to persuade these laboratories to also carry out chemical analysis for smaller salt works if necessary on the payment of a fee : these laboratories can then be "recognised" for the purpose of issuing test certificates and all salt producers must maintain proper est certificate of salt produced/released for sale. The Salt Department should also continue to explore the possibility of pursuading some of the colleges that are located close to salt producing areas to carry out analytical test for the salt works located nearby and equip themselves for this task.

8.7 In summary, the Committee considers that the Salt Department must take the lead in coordinating the formulation of an intensive and extensive programme for the technological development of this industry in consultation with the CS&MCRI and the salt producing State Governments and evaluating and monitoring the progress of the programme. We are fortunate in possessing in the CS&MCRI a special laboratory largely devoted to Salt technology but the potentialities of this laboratory have yet to be properly applied in the production of salt in the country. Another promising development is the growing of consulting organisations specialising in this industry and their expertise will also be of great value in the development to implementation of such a programme of application of technology in the production of salt.

The Commitee envisages a two tier approach. While the Salt Department must provide the overall lead in a coordinating and over-seeing role, salt producing State Governments must provide the field extension services. Till such time as these field extension groups are set up, the Salt Department will have to lend their staff to the State Governments so that these extension groups can be assembled quickly and properly trained.

As will be seen in the preceding paragraphs, the Committee envisages that the CS&MCRI has a vital role in accelerating the application of improved technology in the salt industry. The Committee appreciates that in the course of its development this research institute has initiated various other activities of national importance. However, in order to ensure that the links between this institute and the salt industry are closer in the future with mutual benefit, the institute should have an advisory panel on the salt industry which should include the Salt Commissioner and experts and representatives of the salt industry (including consulting organisations in this field) which can assist the institute in reviewing its activities in this industry and undertake new programmes.

CHAPTER IX—SPECIFICATIONS AND STANDARDS

9.1 The Indian Standards Institute has set out the specification of salt as follows:

Grade of salt	Purity of salt-required % NaCl minimum	Permissible limits of impurities maximum	
Salt for edible purposes	96.0	Matter insoluble in water	1.0%
		Matter soluble in water other than Sodium Chloride	3.0%
Salt for Chemical Industries ISS. 797—1955	98.0	Ca	0.2%
		Mg	0.2%
		SO_4	0.5%
		Na_2CO_3	0.9%
		Water insolubles	0.5%
Salt for fish curing IS. 594—1962	98.0	Soluble impurities other than NaCl	1.5%
Salt for tanning IS. 593—1954	81.0	Na_2SO_4	17.0%
		$CaSO_4$	0.5%
		$MgCl_2/MgSO_4$	0.08%
		Alkalinity as Na_2CO_3	0.3%
		Nitrate as KNO_3	0.8%
Table salt IS20.35—1961	97.0	Matter insoluble in water	2.2%
		Acid insolubles	4.8%
		Ca water soluble	0.05%
		Mg „ „	0.10%
		CO_3 „ „	0.20%
		Fe „ „	50 ppm
		Pb „ „	2.5 ppm
		As „ „	1.0 ppm
Dairy salt IS. 1945—1961	99.6	Ca	0.1%
		Mg	0.01%
		Alkalinity as Na_2CO_3	0.1%
		SO_4 as Na_2SO_4	0.3%
		Insoluble matter	0.03%
		Fe	10 ppm
		Cu	2 ppm
		Pb	2 ppm
		As	1 ppm
Iodised salt	96.0	Matter insoluble in water	1.0%
		Matter soluble in water other than Sodium Chloride (max)	3.0%
Cattle Licks IS. 1291—1958	88.0	Free Sulphur	2.0% to 4.0%
		Iodine	0.01%
		Manganese, iron, cobalt, copper, iodine, zinc & Phosphate	Traccos

The analysis of salt produced in various salt producing areas is set out in Annexure 9.1. It will be seen that :

for edible purpose—a few areas in Gujarat and rather large number of areas in Tamil Nadu, Andhra Pradesh, Maharashtra & Rajasthan etc. fail to meet the ISI specification;

for chemical industries—for fewer, salt producing areas are able to meet the ISI specification (ISS. 797—1955);

for the dairy industry—scarcely any salt works meet the ISI specification (ISI. 1945—1961).

9.2 Following the report of the Salt Experts Committee (1948), standards were set in 1951 so that by 1958, the standards set by the ISI would be fully met and compulsory quality control was imposed. The system of compulsory quality control was withdrawn in 1957 on the representation of salt manufacturers, specially from those operating salt works in Maharashtra, Andhra Pradesh, Tamil Nadu and Orissa and it was decided then only advisory and persuasive methods must be adopted.

The Ministry of Health have notified that so long as salt contains 92% or more Sodium Chloride, no prosecution will be launched. The programme in regard to steady improvement in the Sodium Chloride content, drawn up by the Ministry of Health, is as follows :

	(Sodium Chloride) (Minimum)
1-1-1977-31-1-1978	93.0%
1-2-1978-31-1-1979	93.5%
1-2-1979-31-1-1980	94.5%
1-2-1980-31-1-1981	94.0%
1-2-1981-31-1-1982	95.0%
1-2-1982-31-1-1983	95.5%
1-2-1983-31-1-1984	96.0%

9.3 Standards elsewhere in the works of salt for edible consumption are as follows :

TABLE 9.3—*Standards of edible salt in other countries*

	Sodium Chloride
United States of America	99.4%
Canada	99.0%
France	97.0% to 99%
Italy	98.5% to 99%
Australia	97.5% to 99.4%
Japan	99.0%
Austria	99.0%
Federal Republic of Germany	98.0%

9.4 An increase in the content of chemicals and insolubles other than sodium chloride significantly enhances the hygroscopicity of the salt (from a high content of magnesium chloride) resulting in loss in transit and storage, difficulties in crushing and handling and corrosion, all of which lead to an increase in the price of sodium chloride to consumers, which in view of the cost of transport, handling, wholesale and margin, will far exceed the relatively small cost that might be involved in improving the quality of salt in the salt works. Moreover, a high content of magnesium sulphate also has a pergolatic effect in the human system and affects health.

9.5 The CS&MCRI in Bhavnagar has been able to demonstrate the change in techniques required to produce salt of acceptable specifications. Basically, this entails the use of a series feeding system, with discharge of bitterns at 30° Be, the first two (possibly three) pans yield salt of high quality, that is suitable for edible consumption, as indicated in the following table, the salt obtained from the last two or three pans can be utilised for the chemical industry suitably upgraded by mechanical or other washing :

TABLE 9.5—*Analysis of salt obtained from series and parallel*

Salt	Parallel feeding pan	Series Feeding Pans					
		S_1	S_2	S_3	S_4	S_5	S_6
Ca	0.16	0.18	0.15	0.11	0.11	0.09	0.08
Mg	0.21	0.14	0.16	0.19	0.27	0.35	0.44
$CaSO_4$	0.55	0.61	0.51	0.39	0.37	0.32	0.29
$MgSO_4$	0.35	0.23	0.26	0.32	0.46	0.58	0.34
$MgCl_2$	0.56	0.37	0.42	0.52	0.74	0.91	1.17
NaCl	98.30	98.30	98.30	98.70	98.30	98.10	97.80
Concentration range 8 Be	25.5 to 30.0	25.5 to 26.0	25.8 to 26.3	26.8 to 27.0	26.5 to 27.5	27.0 to 28.0	27.5 to 30.0
Quantity of salt in tonnes	620	630	700	710	715	680	665

This system also leads to an overall increase of around 8% to 10% in the yield of salt. Thus, it is apparent that the technology required to produce salt of acceptable standards is known and is cost effective. The problems are, therefore, wide and resile in diffusion of this technology and appreciation of cost effectiveness combined with suitable analytical facilities to check the quality of salt for sale. In Chapter VIII, the Committee has made recommendations in this regard which consist briefly of the creation of what may be called an extension service by the salt producing State Governments assisted by the CS&MCRI and the Salt Department assisted by training courses at various levels and also in salt producing regions and the use of other media (such as films, video etc.) in salt producing regions of the country combined with improvement in analytical facilities specially by recognising 'approved' analytical laboratories in various salt works (of which there are bound to be a large number spread over the salt producing areas in the country) and arranging with them to test samples of salt producing in the smaller salt works that do not have such facilities and may not be able to afford to set up such facilities in the foreseeable future. These efforts should be linked to advise to the State Governments to insist that the quality of salt they procure each year should conform to the programme of the Ministry of Health of steadily improving its quality and that bags of salt supplied should be stamped with the name of the producer and the quality of salt.

सत्यमेव जयते

CHAPTER X—THE ROLE OF THE PUBLIC SECTOR

10.1 The Public Sector in the manufacture of salt comprises the Central Sector (Hindustan Salts operating in Gujarat, Rajasthan and Himachal Pradesh) and State Sector in which the Governments of Maharashtra, Andhra Pradesh, Tamil Nadu, Orissa, & Rajasthan have set up enterprises to undertake the production of salt. The production achieved by these enterprises, the area licensed to them and the potential production are tabulated below ·

Name of enterprise	State	Location	Area licensed (acres)	Area worked in 1978 (acres)	Installed capacity (max. expected prodn.	Production in '000 tonnes				Comments
						1976	1977	1978	1979	
I. Central Public Sector:—										
Sambhar Salts Limited	Rajasthan	Sambhar	57600	552	200	..	1	9	59	Seriously affected by
	(floods in 1975 : production targeted in 1980 is 150000 tonnes; production achieved in 1974 was 202000 tonnes).									
Hindustan Salts, Kharaghoda . . .	Gujarat	Kharaghoda	23595	1228	150	70	74	57	128	
Hindustan Salts Mandi .	Himachal	Mandi	2	2	N.A	5	4	4	4	Sodium
	(Chloride content only 70% largely used for cattle licks).									
					Sub total	75	79	70	191	
II. State Public Sector:—										
Rajasthan Salt Works, Didwana . . .	Rajasthan	Didwana	1916	385	N.A.	10	46	108	124	
Rajasthan Salt Works, Pachbadra . . .	do	Pachbadra	280688	231	N.A.	..	49	75	36	
East Coast Salt & Chem. Ltd. Naupada . .	Andhra	Naupada	3471	730	100	..	..	3	11	(under development since, 1976).
Marthi Crystal Salt Co. (joint venture) . .	Tamil Nadu	Covelong	3943	3000	150	..	5	)	27	(do 1977)
Tamil Nadu Salt Corpn.	do	Mariyur	5566	1071	250	..	4	6	15	(do 1975)
East Coast Salt & Chem. Ltd.	Orissa	Sumadi	2536	976	100	8	1	4	5	
	(Affects fishing in the area, thereby in difficulties).									
Development Corpn. - Konkan . . .	Maharashtra	Konkan	1167	1167	35	..	2	2	'4	(under development since, 1977)
					Sub total	27	107	207	222	

NOTE : The production of the salt works in Didwana and Pachbadra was seriously affected by unprecedented rains in 1976 and again in Pachbadra in 1979 when it was also affected by floods in July, of that year.

A substantial increase in production is possible and likely in the salt works in the Central Public Sector and even more substantial production is possible for the salt works in the State Public Sector when the development of these salt works undertaken in the last three to four years is completed.

Limit Around the Periphery of the Salt Work of Hindustan Salts in Kharaghoda to Ensure Against Depletion of Brine for These Works.

10.2 Some concern has been expressed that the continued restriction on the establishment of salt works within a 8 mile periphery of the salt works of Hindustan Salts, Kharaghoda deprives works in the area to derive a livelihood from this, which is the only source of employment in that area. The logic of imposing this restriction was to ensure against the depletion of an adequate quantity of brine for the salt works of Hindustan Salts which varies from season to season and well to well over a period of years. The scientific appraisal of brine resources in the area was entrusted by the Ministry of Industrial Development to the Central Ground Water Board in the Ministry of Agriculture in 1969. A Technical Committee was also set up consisting of representatives of Hindustan Salts, Gujarat Government, the Salt Department and the Geological Survey of India. The studies carried out by the Central Ground Water Board and the Geological Survey of India have identified the brine area and variations in the quality and quantity of brine and this has led to Hindustan Salts shifting their brine wells and pans from the existing sites to more suitable sites in a phased manner and a reduction in the 10 mile limit to 8 miles. Nevertheless, the Technical Committee has not yet specifically identified areas that do not affect the supply of brine to Hindustan Salts. The Committee recommends that the phased programme of Hindustan Salts shall be accelerated and areas that do not affect the supply of brine to Hindustan Salts identified quickly and released to synchronise with the phased programme of Hindustan Salts, for operation of private or cooperative salt works as judged most suitable without the Technical Committee imposing restriction on the nature of ownership.

10.3 The Committee considers that given the increase in the production likely from salt works in the Central Public Sector and State Public Sector which can reach 17% of the total domestic production when their development is completed, these salt works can play an important role in following major areas.

Quality and Varieties

10.3.1 These salt works can be the market leaders in producing and selling salt that conforms to the ISI standards (and in due course to the best international standards) and to produce and actively market special varieties of salt such as dairy salt, fortified salt (with Calcium and Iron) and grades of salt specially suitable for the chemical industry.

R & D and Training

10.3.2 In close cooperation with the CS&MCRI, these salt works can and must adopt the most cost effective techniques and assist the State Governments and the CS&MCRI in acting as centres for training a large number of salt workers from areas whose techniques of salt production require considerable improvement. They can also assist schools and colleges in salt producing areas to run special educational and training programmes for salt workers and their families who are also engaged in assisting in salt manufacture.

10.3.3 Each of the major public sector salt works should promote the recovery and collection of bitterns from all the salt works within an economical distance and establish plants to recover by-products such as bromine, potassium chloride, sodium sulphate, magnesium chloride, magnesium sulphate etc.

10.3.4 This large production of salt in the public sector can help maintain some degree of price stability and surveillance and thereby assist other State Governments to procure salt readily at a reasonable price These large salt works can also enter into long-term supply arrangements with such State Governments that welcome such an arrangement: these arrangements can be extended to cover the association of those salt works in storage and distribution The largest of such salt producers M/s. Hindustan Salts Ltd., whose production is currently about 8% of the total domestic consumption of edible salt, should adopt a dynamic approach in the distribution and marketing of iodised and non-iodised salt, including the establishment and operations of new iodisation plants that shall be located in goitre endemic areas and hold discussions with selected deficit states, specially those in the North Eastern part of the country, on the distribution and selling systems it can establish in these areas to meet their domestic demand so that the recurrent shortages of iodised salt are removed and iodised salt becomes readily available at a reasonable price.

10.4 The technological progress of central and public sector salt works will also be enhanced by much closer association between these salt works and scientists and technologists specialising in this field. One possible means of developing and sustaining this close association would be to have CS&MCRI act as consultants to these salt works so that gradually an integrated R&D and training programme can be developed. The association of experts in this industry (consulting organisations and salt technologists) in the Boards of Directors of such salt works should also prove valuable.

CHAPTER XI—LABOUR AND EMPLOYMENT

11.1 The manufacture of salt is highly labour intensive. The total employment in the 'licensed sector has averaged 33,000 (on a daily basis) in the last three years: accurate data are not available in the non-licensed sector but is estimated at about a third of this or 11,000. A characteristic of this industry is the high proportion of female labour. Much of the labour is engaged on a seasonal basis. Precise data on the application of the minimum wages Act, 1948 and other Acts that safeguard the wages and conditions of salt factory workers in salt producing states are not available. The minimum wages Act, 1948 has been applied in most of the major salt producing states (Rajasthan, Gujarat, Tamil Nadu, Andhra Pradesh and Orissa), but minimum wages have yet to be notified by the West Bengal Government and possibly in others too. A survey carried out by the West Bengal Government revealed that the average daily wages paid compared favourably with the minimum wages notified by other State Governments.

सत्यमेव जयते

Data collected on the application of labour Acts in various States are set out below:—

Andhra Pradesh

1. The Minimum Wages Act, 1948.
2. The Industrial Disputes Act, 1947
3. The Workmen's Compensation Act, 1923.
4. The Factories Act; 1948.
5. The Industrial Employment (Standing Order) Act, 1946.
6. The Trade Union Act, 1926.
7. The Provident Fund Act.
8. The Employee's State Insurance Act.
9. The Bonus Act, 1965.

Gujarat

1. The Factories Act, 1948.
2. The Payment of Wages Act, 1936.
3. The Maternity Benefit Act, 1961.
4. The Trade Union Act, 1926.
5. The Industrial Disputes Act, 1947.
6. The Contract Labour (Regulation & Abolition) Act, 1970.
7. The Employment Exchange Compulsory Notification of Vacancies Act, 1959.
8. The Industrial Employment (Standing Order) Act, 1946.
9. The Minimum Wages Act, 1948.
10. The Payment of Bonus Act, 1965.
11. The Payment of Gratuity Act, 1972.
12. The Workmen's Compensation Act, 1923.

Maharashtra

1. The Factories Act, 1948.
2. The Industrial Disputes Act, 1947
3. The Payment of wage's Act, 1948.

Rajasthan

1. The Minimum Wages Act, 1948.
2. The Industrial Disputes Act, 1947.
3. The Industrial Employment (Standing Order) Act, 1946.
4. The Provident Fund Act.
5. The Bonus Act, 1965.
6. The Payment of Wages Act, 1936.
7. The Maternity Benefit Act, 1961.
8. The Trade Union Act, 1926.
9. The Contract Labour (Regulation & Abolition) Act, 1970.
10. The Payment of Gratuity Act, 1972.
11. The Workmen's Compensation Act, 1923.
12. The Factories Act, 1948.
13. The Employees' Provident Fund & Family Pension Act, 1952.

Tamil Nadu

1. The Factories Act, 1948.
2. The Industrial Disputes Act, 1947.
3. The Payment of Wages Act, 1936.
4. The Tamil Nadu Industrial Establishments (National and Festival Holidays) Act, 1958.
5. The Minimum Wages Act, 1948.
6. The Equal Remuneration Act.
7. The Maternity Benefit Act, 1961.
8. The Tamil Nadu Labour Welfare Fund Act 1972.
9. The Workmen's Compensation Act, 1923
10. The Employees Provident Fund Miscellaneous Provisions Act, 1952.
11. The Industrial Employment (Standing Order) Act, 1946.
12. The Contract Labour (Regulation & Abolition) Act, 1970.
13. The Payment of Gratuity Act, 1972.
14. The Payment of Bonus Act, 1965.

The implementation of all the Acts safeguarding the interests of salt factory workers is entirely within the purview of the State-Governments.

11.2 It has been represented to the Committee the the application of the Minimum Wages Act and other Acts still leaves a number of problems affecting the conditions of work untouched. The more important of these are as follows:—

direct recruitment of labour by salt works instead of through labour contractors;

employment of child labour must be prohibited;
assurance of regular employment in each season to the same workers;

holidays with wages on on festive days;

provision of maternity benefits to female workers;

female workers should not be required to work night hours;

creaches must be provided for babies and young children;

higher payment for overtime hours and extension of overtime work beyond 12 P. M. should not be permitted;

provision of dispensary facilities at the site;

provision of reasonable work facilities such as for drinking water, rest, washing and bathing, latrines etc.;

provision of reasonable housing which does not suffer from inundation;

provision of educational facilities for workers children in salt works, located far away from salt works;

prevention of health hazards by the provision of gum-boots;

to prevent skin diseases, goggles to prevent damage to the eyes and coconut oil to protect such parts of the body as come into contact with brackish water.

As stated earlier, these matters are wholly within the purview of the State Governments, and the Committee suggests that special attention be paid by the State Governments to the legitimate difficulties that affect the labour employed in the salt industry specially the particular problems faced by female labour The Committee feels that this can be enhanced by the appointment of special labour welfare officers for workers in the salt industry located in the salt producing regions. The Committee also considers that health hazards must be removed by the State Governments by stipulating the facilities that every salt manufacturer has to provide a condition of his being permitted to lease land for the manufacture of salt. The Committee also recommends that the Salt Department should keep track of the progress made in this matter and should include a detailed review of this in its annual report that must be published so that it is freely available to the public.

Packing Sizes

11.3 The Committee on Conventions appointed by the Government of India in 1977 has decided that the maximum permissible weight to be transported manually by an adult worker should not exceed 75 Kgs. and should be brought down to 55 Kgs. in due course. This is in conformity with the recommendations of the International Labour Organisation. In most industries (such as cement), the normal packing size seldom exceeds 50 to 55 Kgs. The Commttee recommends that the ceiling packing size must be implemented within a specific time-frame and 3 years appears to it to be practical.

सत्यमेव जयते

CHAPTER XII—RECOVERY OF BY PRODUCTS

12.1 Several by-products can be recovered from bitterns generated in the course of manufacture of salt from sea brine, such as gypsum, sodium sulphate, magnesium chloride and sulphate, bromine and potassium chloride. Bromine, epsom salt, light magnesium carbonate, heavy magnesium carbonate, pharmaceutical compounds, such as magnesia hydroxide and magnesia tricilicate can be directly recovered from bitterns. These chemicals have important uses in many fields of industry and agriculture.

The production of 1 million tonnes of salt can yield the following quantities of by-products (one of the several possible product mixes) :

Gypsum	30,000 tonnes
Sodium Sulphate	8,000 tonnes
Potassium Schoenite (22/24% K_2O) .	27,500 tonnes
Bromine	2,000 tonnes

12.2 The potential production of these chemicals based on the present production and projected demand of salt and the current production of these chemicals is tabulated below :—

TABLE 12.2—*Production and demand of bye-products*

(in '000 tonnes)

Bye-Product	Potential		Present production	Current imports
	1980	1988		
Gypsum .	200	580	87	
Sodium Sulphate	436	704	89	
Potassium Schoenite	185	242	24	>500
Bromine	13	18	230	
Magnesium chloride			7	
Calcium chloride			3	

12.3 The achievement of the full potential will be difficult with the dispersal of a large number of small salt works in remote areas and the consequent problem of collection of bitterns in an economical manner. However, there are a number of large salt works (10 in the Central and Public Sectors alone) that have a potential of 1,00,000 tonnes/year salt and are situated in areas of large salt production, so that they can collect additional quantities of bitterns from nearby salt works. Certain locations in Saurashtra, Kandla (Kutch), Kharaghoda-Kuda and Tuticorin are specially attractive. A Study Group appointed in 1977 by the Ministry of Petroleum, Chemicals and Fertilizers has made a number of recommendations in this regard.

The Committee endorses the main recommendations of this Study Group in order to accelerate the promotion of these by-products and suggests that such recovery be exempted from the Industrial Development and Regulation Act. Exemption from other regulations such as those under the MRTP Act and the Foreign Exchange Regulation Act (for such salt works of FERA companies as have been permitted to establish there) also merits early and favourable consideration.

CHAPTER XIII—THE FUNCTIONING OF CO OPERATIVE SALT WORKERS AND MEASURES FO PROMOTING THE FORMATION OF COOPERATIVES

13.1 The manufacture of salt in the cooperative sector has emerged in the last 30 years and the number of cooperative societies engaged in this increase from 4 in 1948 to 130 in 1978. The progress was highly uneven in the early period when of the eight cooperative societies established in the Rann of Kutch between 1952 to 1954 as many as seven went into liquidation soon thereafter. To promote cooperatives in the salt industry, the Government of India extended concessions during 1953-54, exempting cooperative socities from the payment of cess if the share of each individual member did not exceed 10 acres;

preference was given to the cooperative societies in the assignment of Government lands and issue of licences for salt manufacture ;

Central Government lands were assigned to cooperatives subject to the payment of only 50% of the normal assignment fee for the first five years;

full exemption was granted to cooperatives from the payment of cess (provided the individual share of the members does not exceed 10 acres); financial assistance for the execution of development works in cooperative salt factories is given at a higher rate than that admissible to others and cooperatives are exempt from executing the mortgage deed for the grant of loans if the State Governments stand surety for the repayment of loan;

the repayment of loans starts three years from the date of payment of loan or from the date of production of salt whichever is earlier;

and assistance is provided for survey and realig
ment of cooperative sector salt works free
charge.

13.2 The annual production of salt from the cooper
tive sector has now reached 0.90 million tonnes con
tituting about 14% of the total domestic productio
of salt.

13.3 Notwithstanding the concessions granted, it
apparent that the production of salt achieved in th
cooperative sector is still far below the production
the non-licensed sector which has reached 1.25 millio
tonnes constituting about 19% of the total domesti
production. As stated earlier in the report, the furthe
potential of increased production in the areas alread
licensed in the cooperative sector is about 0.30 millio
tonnes equivalent to a 1/3rd increase. Moreover, th
production of this licensed area can be furthe
increased by adopting improved technology and by
proper integrated planning of the areas. In this th
particular assistance of the Salt Department will b
specially valuable. The Committee emphasises th
importance of dramatically improving the viability o
cooperative salt works so that very small salt work
will have the advantage of merging their present sal
works with nearby cooperatives or forming new reasonably sized salt works so that the adoption of improved technology can be facilitated, costs reduce
and valuable by-products recovered. This should b
an important role of the Salt Department and th
salt producing State Government.

CHAPTER XIV—THE REVISED FUNCTIONS AND ORGANISATION OF THE SALT DEPARTMENT

14.1 The recommendations of the Committee in the preceding Chapters, specially in Chapter VII, entail a radical revision in the functions of the Salt Department and consequently in its organisation and staff structure. With the removal of the cess (or the alternative of collecting the cess on the consumption of salt by manufacturers of caustic soda and soda ash which can be collected through the excise staff already supervising the collection of excise from all such manufacturing plants thereby relieving the Salt Department of this function) and changes in the operation of the Salt Cess Act and Rules etc., the major functions of the Salt Department will be as follows.

Production and Prices

14.1.1 The Salt Department must assess the domestic demand (taking into account inventory changes), likely exports, set targets of production of salt (iodised and non-iodised) in different salt producing areas in consultation with the State Governments concerned, monitor the progress in the production vis-a-vis the targets set, assist in removing the bottlenecks that arise (such as the supply of power and diesel fuels), develop detailed data on the fair levels of the ex-works and market price, fair margins at various points in the distribution chain right to the consumer price, identify measures that can lead to cost savings and actively assist the State Governments and consumers in this regard.

Special attention must be paid to :—the production and distribution of iodised salt to the goitre endemic areas in the requisite quantity; the production of salt in deficit states in a viable manner.

Storage and Distribution

14.1.2 As indicated in Chapter V, this is a crucial activity which can lead to very substantial cost savings in the ultimate consumer price. The Salt Department has to take the load in working out a detailed movement pattern in consultation with the Railway authorities and the Director General of Shipping and also with the Railway authorities in ensuring that wagons and coastal vessels are despatched according to their detailed movement pattern and continuously monitor its progress. The Salt Department must also ensure that the minimum level of inventories suggested in this report, as may be modified from the further experience gained, are maintained at the correct points which also need to be reviewed regularly in consultation with the State Governments. Here the expertise of the Food Corporation in this matter should also prove useful to the Salt Department.

Technological Development

14.1.3 While the actual responsibility for providing an extensive service for the application of improved technology will be that of the State Governments concerned, the Salt Department, in consultation with the CS&MCRI and the State Governments concerned must develop a detailed time-phased programme for this including training in the CS&MCRI and efficient salt works, in all major salt producing areas. The Salt Department must also institute a system of measuring technological progress each year which will assist in guiding the State Governments in promoting this effort.

Consultancy services in the public and private sectors have a very important role to play in this effort and the Salt Department and the State Governments must encourage the establishment of such service organisations.

Investment

14.1.4 Significant investments will have to be made in improving the infrastructure (road, rail, navigation and other means of communication, rail sidings, platforms, dredging etc). and the Salt Department in consultation with the State Governments and others such as the Railway authorities and Port Trusts, must work out a comprehensive time-phased programme (and wherever necessary utilise the services of reputable consultancy organisation in this), assist these organisations (who will be responsible for providing these services) in raising the necessary finance and monitor its progress.

Labour Welfare

14.1.5 Here too, while the basic responsibility for ensuring the welfare of male and female labour rests with the State Governments, the Salt Department must periodically review the conditions of labour (wages, welfare, provision of safety equipment, educational amenities etc) working in the salt works, assist the State Governments in working out a detailed programme for rapidly improving the conditions and monitor its implementation. The Salt Department must also facilitate the application of various Acts in the different States that provide safe-guards to the conditions of labour.

Exports

14.1.6 No concerted effort is evident to the estimation of the potentially remunerative export markets that the country can capture and proper planning for this. In consultation with the State Trading Corporation and the Port Trusts, the Salt Department must facilitate the completion of rigorous studies in this matter, identify the action that must be taken by the various agencies and monitor the progress.

Others

14.1.7 The other major areas in which the Salt Department must play an overseeing role are .

continuously establish future quality standards and assist in ensuring that these standards are properly met; in consultation with the Directorate General of Meteorology ensure the erection of suitable weather forecasting stations in the requisite areas;

provide special assistance in accelerating the progress of cooperatives.

Revised Organisation of the Salt Department

14.2 To fulfil the role detailed above, which is a development role, the Salt Department's functioning will have to be officer oriented with four major divisions for Production, Storage and Distribution, Technological Development and Labour Welfare to which should now to be added a good Economics and Statistics Division that will collect and analyse data on production, distribution, storage, prices, technological progress etc. It is clear that the collection of much of these data from each individual salt producer is exceedingly time consuming. Moreover, many salt producers do not supply data. The use of statistical sampling techniques should greatly simplifying this entire task of assessing demand, production, inventories, the rate of technological progress etc. This Division should also assist in preliminary assessment of the viability of undertaking the manufacture of salt in deficit areas, the viability of assistance to capture export markets, trends in costs, fair price, market price and distoration in these as also, in association with other divisions, the investment requirements and in monitoring the progress of implementation.

While these four major divisions should be placed in the Office of the Salt Commissioner (which the Committee considers should be renamed as the development Commissioner for Salt) some Officers will have to posted to the railway headquarters (possibly the headquarters of the Divisional Superintendents) in the major surplus States of Gujarat, Tamil Nadu, Rajasthan and possibly Andhra from where salt has to be despatched by rail (and a little by sea) to direct the movement of salt to the deficit States and to assist in technological development as stated earlier. In this matter, the Salt Department should seek the assistance of the Railway authorities in the deputation of suitable personnel from the Railways to assist in this task. Therefore, in brief, the Committee assesses the need for four senior officers (of the rank of Deputy or Assistant Salt Commissioner) in the headquarters to assist the Development Commissioner (of which the one in charge of Storage and Distribution can possibly be obtained on deputation from the Railways, at any rate initially) and suitable number of officers, possibly of the rank of Assistant Salt Commissioners, in the headquarters of the Divisional Superintendents of the Railways in the surplus salt producing States of Rajasthan, Gujarat, Tamil Nadu and possibly Andhra : these latter need not at all be from the Salt Department, some can be on deputation from the Railways. Initially, it might also be desirable to post an officer of the rank of Assistant Salt Commissioner somewhere in the North Eastern part of the country to assist these States in ensuring the ready availability of iodised salt.

The Committee has not been able to study in detail the requirements of each category of staff at each level. But, it is clear that very substantial reductions are possible in Group B (Non-gazetted the existing strength of which is 56), Group C (the existing strength of which is 341) and Group D (the existing strength of which is 563). The precise extent of the possible reduction is best determined by detailed discussion with the Railways and the Directorate General of Shipping on the requirement of staff of the Salt Department and their location, so that the movement of salt by rail and by coastal movement is properly directed and for the rest, the assistance of the Staff Inspection Unit should be sought to work out the minimum requirement of staff in the light of the Government's decision on the recommendations of the Committee in regard to such matters as licensing. However this may be, the ultimate objective must be clear to have a compact but highly competent staff to discharge the development role in this industry.

Disposition of Staff Found Surplus

14. 3 The Committee anticipates that as a result of the studies it has recommended in the preceding paragraph a large number of staff will be declared surplus. The Committee considers that employment avenues for this surplus must be found by establishing a Surplus Cell (or by using the Central Surplus Staff) Cell already in existence in the Ministry of Home Affairs). The Committee is convinced that this surplus can be fully and remuneratively absorbed in several ways such as the following :

with the role now delineated for the State Governments; these State Governments will have to create divisions or departments to undertake these tasks and should therefore, be pressed to recruit staff from this surplus which has some knowledge of this industry; preferentially, licence areas for the production of salt to this surplus and assist it by arranging the requisite financial assistance to undertake salt manufacture : the knowledge of this industry, that this surplus staff has, should be of special advantage. The possibility of some of this surplus staff forming cooperatives to undertake the production of salt should also be encouraged; assist the staff in promoting suitable design and consultancy organisation specialising in the salt industry.

Salaries and Allowances

14.4 The members of the Salt Department complained to this Committee of their poor pay scales specially in relation to those of the Central Excise Department of which they were a part until 1947 and pointed out that the assurances given by the Ministry of Industry in 1964 (the Ministry of Industry letter No. 9/5/62-Salt dated November 30, 1964) in regard to the pay scales of certain posts, have yet to be fulfilled. Certain

Unions of Employees have complained of frustration caused by stagnation, poor prospects of promotion, poor housing in the remote areas in which they are located.

The Committee considers that many of these complaints are legitimate and suggests that the terms of reference of the Staff Inspection Unit that the Committee has suggested be requested to study the staffing of the Salt Department in view of the role delineated for it by the Committee, should include the appropriate pay scales, allowances, amenities and the policy of promotion.

14.5 The Annual Administration Report of the Salt Department should be published and the available freely to the public. It should include a comprehensive survey of the industry and contain statistics of consumption and production of different grades of salt in the States, trend in the movement of price, technological progress achieved, improved technology available: modes of distribution etc. It would also be desirable if the Salt Department could encourage the various associations of Salt Industry to bring out a Directory of the Salt Industry containing comprehensive data on salt manufacture, manufacture of equipment required in the production, storage and transportation of salt and its iodisation, consultancy organisation etc.

सत्यमेव जयते

Signatures of the Chairman and Members of the Salt Enquiry Committee

Sd/-
S.K. SARI
Member

Sd/-
LOVRAJ KUMAR
Chairman

Sd/-
R. JAYARAMAN
Member

Sd/-
J.S. IYER
Member

Sd/-
K.K. ARORA
(on behalf of Shri K. Neelakantan)
Member

Sd/-
V.B. BUCH
(on behalf of Shri M.G. Shah)
Member

Sd/-
T. BHATTACHARYYA
Member

सत्यमेव जयते

Sd/-
D.J. MEHTA
Member

Sd/-
E.P.W. DA COSTA
Member

Sd/-
S.C. AGGARWAL
Member

Sd/-
M.M. GURUNATH
Member

Sd/-
RASIKLAL C. MEHTA
Member

Sd/-
K.L. SAHNI
Member-Secretary

NOTE OF DISSENT BY SHRI K.L. SAHNI (SALT COMMISSIONER) MEMBER, SALT ENQUIRY COMMITTEE

REFERENCE CHAPTER VII

I propose to deal with the following questions included in this Chapter :—

Collection of land revenue by the State Governments on lands of the Salt Department and to credit the same to the Salt Department (para 7.5) :

I am araid, this suggestion will not work smoothly and the revenues of the Salt Department, such as, assignment fee, ground rent etc., would fall in irrecoverable arrears. I cite a couple of specific exampels. An area of 1990 acres of Salt Department was leased out to the Government of Andhra Pradesh in Krishna District for 15 years from 11-5-1962 to 10-5-1977 on the condition that the lands will be leased out by the State Government for agricultural purposes and 95% of the lease money will be credited to the Salt Department, retaining 5% with them as service charges. The State Government remitted the share of the Salt Department upto the years 1976-77 only in 1979 and that too after a long correspondence. The lease money for the land beyond 1976-77 is still to be credited by the State Government. In an another case, an extent of 31 acres of Salt Department land in S.No. 8.B/1 of Kayalpatnam village (Tiruchendur Taluk of Tirunelveli District) was placed at the disposal of the Government of Tamil Nadu for a period of five years from 28-7-1968 to 27-7-1973 for leasing out to the members of the Agricultural Association, Arumuganeri, for wet cultivation, on the condition that the State Government pay the Salt Department 95% of the lease money collected by them. The State Government leased these lands at an annual rental of Rs. 1000 per acre. The lease period expired on 27-7-1973. But the agriculturists continue to occupy the lands and the State Government is treating them as encroachers and have served on them Memos. They have also passed orders of their eviction. But, till date :—

(*i*) the amounts due to the Salt Department from out of the lease money collected by the State Government for the period from 28-7-1968 to 27-7-1973 remains to be reimbursed in spite of repeated reminders; and

(*ii*) the unauthorised occupation of Salt Department lands continues.

Further, the Salt Department will be required to maintain a record of such lands, to watch their utility and also the recoveries of revenues from the State Governments from time to time, and address them either directly or through the Ministry for the purpose. Obviously, the same volume of work will continue even if the work of collection of assignment fee is transferred to the State Governments. In my opinion, only those lands which are not under salt manufacture could be transferred to the State Governments and the remaining lands should continue with the Salt Department. The question of their guarding will, thus, not arise.

2 *Licensing*

It is proposed that the State Governments may be delegated the authority to issue licences for manufacture of salt on behalf of the Salt Department after examining the schemes in accordance with the guidelines that the Salt Department should formulate for adoption by the State Governments (para 7.6).

(*i*) The proposal made is of course very good but it has some vital implications which also need considerations Salt, in the Constitution of India, is a Central subject vide item No. 58 in Schedule VII, and is administered by the Salt Commissioner to the Government of India under the Ministry of Industry, New Delhi. By transferring this work to the State Governments, does it mean that necessary amendments will have to be made in the Constitution ? Further it is mentioned that the guidelines will be formulated by the Salt Department for adoption by the State Governments. Does it mean that a new Act will have to be enacted to ensure that the guide lines issued by the Salt Commissioner in consultation with the Central Government will be followed by the State Governments to regulate production, distribution and pricing of salt and that they will not levy any other charges on salt which otherwise will certainly boost up the prices in the consuming areas. Gujarat and Tamil Nadu are the two main salt producing States. The remaining 24 States/Union Territories either do not produce salt at all or they are deficit in production. By handing over the work of licensing etc. to the State Governments will obviously mean that these States will have to abide by the terms and conditions that may be laid down by the above two States. It is absolutely necessary that the Salt Department should play the developmental role as a Central agency to promote the Industry in the country and to make the distribution system most effective.

(*ii*) The Salt Experts Committee, 1950, who had examined the working of the Salt Industry, had recommended that the minimum economic unit should be 100 acres for a planned development of Salt Industry in the country. Based on these recommendations, as also to curb the abuse of 10 acres concession, the Government of India had taken a policy decision in the year 1964 that the issue of fresh licenses for new lands should be regulated in consultation with the State Governments concerned in such a way that new works are set up, wherever land is available for the purpose, only in areas in excess of 100 acres. As a follow up action the Salt Commissioner addressed the various State Governments in his letter on 4-12-1964 requesting them to ensure that areas less than 100 acres each are not leased for salt manufacture unless the land to that extent is not at all available for the purpose. They were also requested that licensees operating on State Government's lands upto 100 acres should be prevailed upon at the time of renewal of their leases to take additional areas so as to achieve expansion of their salt works for production of better quality salt. (Rajasthan State was, however, exempted from the purview of this policy decision on account of the high density brine available in the saline areas of the State).

(*iii*) Certain guidelines were framed by the Ministry of Commerce and Industry to be observed in granting new leases/ licences for salt manufacture in the areas where such additional capacity is to be established and were communicated to the various State Governments in February, 1962.

It is unfortunate to note that except the Govt. of Gujarat who almost invariably consult the Salt Commissioner before leasing out lands for salt manufacture, the remaining State Governments have either not taken any concrete steps to beneficially utilise the virgin saline lands available in their States or have been leasing out lands without consulting the Salt Commissioner, on their own terms and conditions. Sometimes, the terms and conditions laid down by the State Governments have not been in conformity with the guide lines prescribed by the Govt. of India. Further, experiments in this regard are not advisable. The quantum of salt production is dependent on various climatological and other considerations. Two or three adverse years can reverse the trends of bumper production. The Salt Department who is responsible for the distribution of salt must have reliable information about production trend in the various salt producing areas, availability of stocks from time to time to plan movement to meet indigenous requirement for edible and industrial purposes, and to allow exports to the extent possible. Date given by someone else cannot be relied upon as personal inspection is vitally important.

(*iv*) In para 7.3, it is mentioned that the procedures are vexatious time consuming for licensing etc. Such delays are not peculiar to the Salt Department alone. The delay in some cases will occur even if the work is trnsferred to the State Governments. Salt Commissioner has already delegated powers to the Regional Officers to grant No Objection Certificate for the issue of licence in anticipation of salt Commissioner's approval. This has cut down the delay to a considerable extent. The solution does not lie in transferring the work to the State Governments. For a planned development of the Salt Industry, a centralised agency is necessary. The procedures can further be simplified if considered necessary.

(*v*) Collection of statistical data regarding salt production, area under manufacture, forecast of production, factors affecting production etc., if any, despatches by various modes of transport etc., will be a problem for the Salt Department if this entire work relating to salt is not handled by the Salt Department. In other words, the work of the salt Department will increase.

3 *The work of execution of labour welfare and development works from cess proceeds and gant of loans to be transferred to the state Governments. The cess should be provided under the Central Plan directly to the State Governments and to their financial and industrial investment corporations. (The Salt Department's advice on this will naturally be available to the Planning Commission when these outlays are discussed).*

(*i*) The work is proposed to be transferred to the State Governments on the ground that there is delay in processing schemes and their execution by the Salt Department and the CPWD.

(*ii*) From the same chapter, it will be seen that the expenditure on development works, which was only Rs. 15 lakhs during 1976-77 has gone upto Rs. 31 lakhs and Rs. 46 lakhs during the yers 1977-78 and 1978-79 respectively. This itself is an indicator to the fact that progress can be achieved in this rgard by liberalising futher the Code of Principles and enhancing the powers of the Salt Commissioner, for which proposals are already under consideration of the Govt. and the same are required to be cleared on receipt of the recommendations of the Salt Enquiry Committee.

(*iii*) It is also pointed out that it is not only the CPWD who delay the execution of works but the State Governments are also responsible in some cases for delay where the execution of works is entrusted to them. Prior to the year 1978, works costing about half a crore of rupees, were entrusted to the State Government of Gujarat, which are to be completed. Even during the years 1978-79, works costing about Rs. 35 lakhs have been entrusted to the same State Governments. Similarly, works costing about rupees one lakh have been given to the State Government of Orissa.

(*iv*) Instances are there where the State Government agencies also took about 10 years period to complete works entrusted to them.

(*v*) Keeping in view the above position, it is felt that the work relating to collection of cess, execution of labour and development works may continue to be with the Salt Department and the existing Code of Principles be further liberalised. By entrusting the job of execution of works to the State Governments at this stage will be to repeat the old drill. In case, the State Governments are also not able to execute the works quickly, the Salt Industry will receive a set back.

MINUTES OF DISSENT OF SHRI S.C. AGGARWAL

Abolition of Cess and getting 1.5 crores from General Revenues or alternatively levying rupees 5 or 10 per tonne of salt consumed by Soda Ash and Casutic Soda Industries.

(*a*) The main argument for abolition of Cess appears to be the idea that the Salt administration cost (55% of the total collection goes towards the collection of Cess, licensing etc. I am afraid, this is an erroneous concept) Actually cost of collection of cess is very little, as it is directly deposited by every producer into the Treasury and the. Factory staff merely see the Challans and allow the salt to go out upto the quantity for which Cess has been paid. This check has been relaxed in Gujarat by introduction of "Self Removal" system which is proposed to be extended to other areas. The main functions of the factory officers and Inspectors are giving day-to-day guidance to the Salt Manufacturers, watching quality issue forwarding notes and execution of development works, report about suitability of new lands, collection of Central Government leases dues and maintenance of Government buildings etc. The administration cost includes all regional offices and Central Office whose duties are numerous.

(*b*) The Cess at present is Rs. 3.50 per tonne. A family of 6 persons at the most consumes 36 Kgs. per annum. Cess on this quantity works out to 12-13 paise per annum or *one paise a month for a family of six.* I need hardly say that abolition is meaningless so far as incidence of Cess on salt price is concerned.

(*c*) During the last 30 years or during the last 15 months of Committee's functioning, no request whatsoever has been made by anyone for abolition Cess. In fact, Tuticorin Manufacturers have suggested that it should be raised.

(*d*) The suggestion that Government will pay Rs 1.50 crores from General Revenue on a recurring basis will hardly be entertained by the Parliament. In any case, abolition cannot be done as the Cess has been levied under an Act of Parliament, without another Act.

(*e*) The suggestion is that if the Government do not agree to pay from General Revenues, a new Cess rupees 5 to 10 per tonne of salt consumed by the Caustic Soda and Soda Ash Industries should be levied. The production of these two is about 14 lakh tonnes and the salt consumed 28 lakh tonnes. Thus at rupees ten, the levy will come to rupees two hundred eighty lakhs or 2.8 crores. I doubt if the Industry will at all agree. They will rightly protest and argue that salt Consumed by other Industries should also be taxed and since nobody gains anything, the question of abolition should be given up. This is against the time honoured practice of allowing duty free salt to Industries all of which were allowed refund of duty as they consumed salt from open market.

(*f*) The proposed Caustic Soda or Soda Ash levy will be seriously opposed by the General public as it will affect the price of the soap and the dhobi charges (dhobies use a lot of washing Soda or sodium carbonate); obviously a family of six will have to spend much more owing to rise in soap price than one paisa per month which they are paying as Salt Cess,

(*g*) Abolition of Cess is a retrograde step cutting at the very root of Gandhiji's Salt Satyagrah (civil disobedience movement 1930). Gandhiji insisted that the poor man must be allowed to pick salt freely and sell it in neighbouring places to make a living. It was for this reason that he started the civil disobedience movement, Dundee March against the provisions of the Salt Act, 1882. Ultimately the then British Government yielded and Gandhiji won his point under Gandhi-Irwin pact. The poor people have since then being allowed to pick salt from wherever they like. The concession when the Cess was levied of exempting small manufacturers upto 10 acres land from the Cess is based on Gandhiji's main plank. *If the Cess is abolished, the small man's advantage finishes.* The production of Small Scale Producers is about 11-12% thousands of them who are now making a living will be ousted by the bigger producers, as the present advantage they have (3.50 rupees per tonne) will be taken away. In fact, recently Government of India helped these men vide their orders allowing them wagons under preferential traffic—a concession that was denied to them during the last 30 years. With what face can Government of India now instead of helping them further, throw them at the mercy of the bigger producers who have resources at their command ? Thus abolition of Cess and equalising small and big producers will be a death-knell to the small manufaturers. In short, it will be obvious that the proposal to abolish the Cess and get the amount from the General Revenues or by a levy on salt used by Soda Ash and Caustic Soda Industries is unsustainable and will not have ghost of a chance to go through.

(*h*) Government is committed to encourage establishment and development of co-operatives. The Manubhai Shah Committee also suggested encouragement to them. At present the Societies are free from Cess payment. This gives them an advantage (3.50 rupees per tonne) over the big producers and they are developing and holding their own. Equalising them with big manufcturers will mean their extinction and will be against the time honoured general policy of the Government to encourage Co-operatives and will be putting the hands of the clock back.

During 1960 , there were 50 co-operative Societies. Now there are about 130 co-operative Societies and they produce 12-13% of the total production. Several State Governments have promised to encourage establishment of more societies, number of members at present being 17,000.

2 *Licensing of lands for salt manufacture—to be transferred to State Governments*

This suggestion deviates from the stand taken by the Committee. In fact, no State Government asked for it; even Shri Shah had suggested that Deputy Salt Commissioner, Ahmedabad should be empowered to issue licences. Recently, however, Gujarat suggested that the licensing should be shifted to them. This will not be in the interest of the Industry. It is a small casual work which takes very little of the factory officer's time. Persons who have their own land or take it on lease apply to the Salt Department. The Department only verifies about the suitability of the land, quality of the brine, market, transport facilities etc. and advises he would-be manufactueres. This is in their interest otherwise the Salt Department is quite willing to issue on any application sent by State Government but without technical scrutiny the persons concerned embarking on a new venture may fail and lose all their money. Allowing the licences to be issued by the State Government will mean some inexperienced Inspectors etc. will report about the suitability of land and the result may be that the persons concerned will lose their invested capital. The Salt factory officers who now report on such applications are generally experienced men who have gone round in various regions and are well conversant with the manufature work. The developing states like Andhra, Orissa, West Bengal would not like to bother and have their own staff for advice for the limited number of licences they issue in a year. The cost of staff appointed by them will be out of proportion to the work entrusted to them. Only Gujarat is anxious to have licensing; they have even admitted that the Salt Department has never rejected any application. Licence is absolutely free, no fee being charged. The idea is to have some control over the manufacturers concerned for quality for submission of returns etc. The policy of delegating the authority to the State Governments to issue licences will create confusion and will hardly lessen the work of the salt Department as statistics etc. will still be maintained by the Department. If there is any delay, the Salt Department is quite willing to expedite. It is, therefore, no use whatsoever to change the present licensing procedure.

3 *Decentralisation of administration*

This is the Term of Reference No. XVII but has been brought in Chapter No. VII. I have already indicated above that abolition of Cess, giving over its collection to State is not a practicable propostion. Licensing too as indicated above is in the same category.

Most State Governments and Associations have opposed any decentralisation. West Bengal Government have said they will be held to ransom by the two producing States if the decentralization is done. Gujarat producing over 40% wants to control the whole Industry as it were. This will be a bad precedent. Bengal and Bihar may clamour for controlling iron ore, coal, mica etc. and ask the Centre to pack up. The Gujarat Government wishes to take over collection and administration of Salt Cess Fund. It is not understood as to how a single State can perform this All India Function. The Cess is levied on all producers thousands of whom are in other States.

So far as Monitoring movement, regulating distributions and price control and implementation of Zonal Scheme are concerned without a single exception—even Gujarat Government are definite that it should continue with the Central Government Department.

4 *Development and Labour Welfare Works*

It is true, the tempo in the beginning was slow. This has been rising. Last year Rs. 46 lakhs were spent on Development and Labour Welfare Works. Salt Depatment is anxious to entrust big works to local Governments to expedite execution. Loans etc. will be given quickly as the Code of Principles is being liberalised. Cess receipts will rise to 1.50 to 1.75 crores as production rises and thus Rs. 80 lakhs or even more will be available for development works, labour welfare, subsidy for shipping freight to Calcutta and any ex-gratia payments etc. during any calamities like floods.

5 *Constitutional position*

Salt is a Central subject under the Constitution of India which states manufacture, supply and distribution of Salt by Union Agencies, regulation and control of manufature and supply and distribution of salt by other Agencies are the items in the Union. List under item 58 of the VII Schedule. Public will oppose any change. It is also doubtful if the Government would like to put in a bill for a change in the Constitution.

6 *Transport and movement of salt*

One of the main reasons for setting up of the Committee was that complaints from North-Eastern States of very high prices and shortages. The Salt Commissioner is constantly in touch with the Railways and the Director General, Shipping and watching movement throughout India. He arranges rail rakes in emergency. All agree he should continue to shoulder this responsibility. Some North-Eastern States want a special Officer to be posted there to keep a watch and inform the Salt Commissioner from time to time.

7 *Enlarged functions of the Salt Department*

The present functions were decided at a very high level meeting and include all matters pertaining to distribution, ensing, collection of cess, implementation of rules under the Cess Act, promoting exports quality control encouraging co-operatives, utilisation of Cess proceeds for development and labour welfare works, mainting laboratories, model farms, keeping liaison with Central Research Institutes, State Trading Corporation etc., encouraging recovery of by-products production and distribution of iodised and sepcial varieties of salt and so on. In addition the Committee has suggested several other functions to be performed by the Salt Commissioner, such as trying for a uniform system of levy of rent on salt lands by the State Governments thoughout India, having close liaison with States and financial and industrial bodies. The Salt Commissioner should be designated as Development commissioner for Salt. He should also get in touch with the meteorological Department and also with Colleges having good laboratories and settle with them to analyse the salt samples. He should also set up some good factories to work as Model farms. He has also to persuade all State Governments to apply labour laws such as Minimum Wages, Factories, Payment of Wages Acts, etc. to the Salt Industry. Obviously, all these extra duties demand the Salt Organisation should not be interferred. The self removal system if gradually extended, will release some staff and the demands of Orissa, Maharashtra etc. for extra posts can be met with, without any extra expenses.

Summarising I am of the view that :—

(*a*) It is not necessary to change the constitutional postition of the 'Salt' and abolish the present Cess or replace it by a levy on salt used by Soda Ash Industry and Caustic Soda Industries. A family of six will save one paisa per month as a result of Cess Abolition.

(*b*) Licensing system should continue as it is. Salt Department will expedite and will have a close liaison with all States especially the salt producing ones.

(*c*) Salt Department will eliminate delays in execution of development and labour welfare works.

(*d*) It will pay special attention to North Eastern Regions and will bring out prices by considering subsidy for shipping freight and rushing rakes, if necessary, when there is special shortage anywhere.

(*e*) It will help in creating buffer stocks as Golahs in Calcutta, in all North Eastern States, and encourage them to build Godowns etc. Some help from financial institutions can be given.

(*f*) Abolition of Cess will mean undoing of Gandhiji's achievement to help the poor men as they will lose all the advantages and bigger sharks will fiinish them. The same will be the fate of the co-operative societies which Government is supposed to encourage as a matter of policy. These two manufacture about 20 to 25%of the total production in the country.

In short, I may say that the Salt Department should continue to act as a friend, philospoher and guide to Manufacturers, exporters, traders and General public as at present.

सत्यमेव जयते

ANNEXURE I

No. 02012/4/76-Salt

GOVERNMENT OF INDIA

MINISTRY OF INDUSTRY

(Department of Industrial Development)

New Delhi, the 30th November, 1978

RESOLUTION

The problems affecting the salt industry in the country and the need for a detailed study of the industry have been engaging the attention of the Government of India for some time. Government have, therefore, decided to appoint a high-level committee to undertake a comprehensive review of the problems facing the salt industry and to suggest suitaable measures for the development of the salt industry.

2. The terms of reference of the proposed Enquiry Committee will be as follows :—

(*i*) To assess the demand of salt for human consumption, industrial purposes and exports during the next ten year period;

(*ii*) To assess the potential for production of salt and to recommend measures to maximise production;

(*iii*) To make a study of costs and prices and recommend fixation of fair ex-works prices of salt for different regions;

(*iv*) To review the present Zonal Scheme for distribution of salt for human consumption (including iodised salt and with special reference to movement of salt by sea to West Bengal);

(*v*) To review the present arrangements for public storage and retain distribution of salt and to recommend improvements;

(*vi*) To consider the feasibility of freight equalisation for salt;

(*vii*) To review the operation of Salt Cess Act, the Salt Cess Rules and the Code of Principles for cess assistance by way of loans and grants in order to ensure equitable benefits to all the salt producing regions;

(*viii*) To review other levies on salt production in different states in order to achieve uniformity to the extent possible;

(*ix*) To review the system of licensing of salt works including the present exemption upto the limit of 10 acres;

(*x*) To review the functioning of co-operative salt works and to suggest measures for promoting the formation of co-operatives in the field;

(*xi*) To review labour and employment situation in the salt industry and propose measures for fixation of wages and labour welfare;

(*xii*) To review and re-define the role of public sector in the salt industry;

(*xiii*) To recommend measures for better quality control and upgrading the standard of indigenous salt to international standards;

(*xiv*) To review the progress of research and development of model salt farms including the operation of marine salt farms, research stations and regional quality control laboratories;

(*xv*) To consider the need for import of salt and to recommend measures of export promotion;

(*xvi*) To review the progress of salt based chemicals and recovery of bye-products from bitterns and propose measures for encouraging the establishment of marine chemical industry;

(*xvii*) To review the working of the Salt Department and examine the feasibility of decentralisation of salt industry;

(*xviii*) To consider any other matter proposed by the Salt industry or the State Governments and to make appropriate recomendations thereon.

सत्यमेव जयते

3. The composition of the Committee shall be as follows :—

(*i*) Smt. Abha Maiti, — Chairman
Minister of State for Industry,
Government of India.

(*ii*) Shri Lovraj Kumar, — Vice-Chairma
Chairman,
Bureau of Industrial Costs and Prices
Ministry of Industry.

(*iii*) Shri S.C. Aggarwal, — Member
Retired Salt Commissioner
to the Govt. of India.

(*iv*) Shri T. Bhattacharyya,
Director,
Non-Cereal Essential Commoditie
Food and Supplies Department,
Government of West Bengal,
Calcutta.

(*v*) Shri E.P.W. De Costa,
Indian Institute of Public Opinion,
New Delhi.

(*vi*) Shri M.M. Gurunath,
Chief Consultant,
M/s. Gurunath and Sons,
Consultants on Salt and Marine
Chemical Industries,
Madras.

(*vii*) Shri J.S. Iyer,
Member (Finance),
Bureau of Industrial Costs and Prices,
Ministry of Industry
New Delhi.

(*viii*) Shri R. Jayaraman,
Member,
Bureau of Industrial Costs and Prices,
Ministry of Industry,
New Delhi.

(*ix*) Shri I. Mahadevan,
Joint Secretary,
Ministry of Industry,
New Delhi.

(*x*) Dr. D.J. Mehta,
Director,
Central Salt and Marine Chemical
Research Institute,
Bhavnagar.

(*xi*) Shri A. Ramji,
Additional Director,
Traffic Transportation,
Ministry of Railways (Railway Board),
New Delhi.

(*xii*) Shri M.G. Shah,
Secretary,
Industries, Mines & Power Deptt.,
Government of Gujarat,
Gandhinagar.

सत्यमेव जयते

(xiii)	Shri T. Thangavelu, Managing Director, Tamil Nadu Salt Corporation Ltd., Madras (Representative of Govt. of Tamil Nadu).	Member
(xiv)	Shri K.L. Sahni, Salt Commissioner, Jaipur (Ex-officio).	Member-Secretary.

4. The Committee shall submit its report to Government within a period of six months.

ORDER

Ordered that a copy of the Resolution be communicated to all the Ministries/Departments of Government of India including Planning Commission, Cabinet Secretariat, Prime Minister's Office and all the State Governments/ Union Territories.

2. Ordered also that the Resolution be published in the Gazette of India for general information.

सत्यमेव जयते

Sd/-
(I. MAHADEVAN)
Joint Secretary to the Govt. of India.

ANNEXURE 2.1

SUMMARY OF RECOMMENDATIONS MADE BY THE SALT EXPERTS COMMITTEE OF 1948

CHAPTER III

(*a*) It would be desirable to calibrate the Baume hydrometer for use in India at a temperature which represents a fair average of the prevailing temperatures falling within the range 27°+2° (80°+4°F).

CHAPTER IV

(*a*) Rain gauges should be installed in salt works wherever possible to maintain a regular record of rainfall.

(*b*) The crystalliser beds should be so designed as to enable the removal of rain water which mostly remains at the top of the concentrated brine, and thus reduce interruptions in manufacture during heavy showers.

(*c*) The following daily records should be maintained at the salt works :—

- (*i*) maximum and minimum temperature
- (*ii*) relative humidity
- (*iii*) wind direction and velocity

(*d*) The beds of crystallisers and high density condensers should be made impervious by use of plastic clay.

(*e*) Ring channels should be provided wherever required to prevent lateral infiltration of water or weak brine.

(*f*) Experiments should be conducted in the research station on the utility of oxychloride cement as a lining for crystalliser beds.

(*g*) In areas subject to cyclones location of salt factories must be settled with adequate regard to the possible loss to the works due to floods.

(*h*) In areas subject to dust storms wastage should be reduced by regulating the process of manufacture so as to yield large compact crystals of salt.

CHAPTER V

(*a*) In places where rainfall is high and sea brine gets diluted the alternative method of tapping subterranean brine by tube well should be investigated.

(*b*) Bitterns should be prevented from draining into the reservoirs which should be used only for the storage of brine.

(*c*) The relative areas of crystallisers and reservoir cum condensers should be fixed with due regard to the density of the initial brine used.

(*d*) In marine salt works, the crystallisers should be located together, to facilitate easy collection and storage of salt and should be so placed as to have the benefit of the land breeze. It is advisable to have a small condenser area intercepting the land breeze before it reaches the crystallisers.

(*e*) The crystallisers should, as far as possible, be large in area, but where single irrigation system is followed the width may be fixed at 35 to 40 ft. so that all parts of the pans may be within reach of the wooden scrapers. A gentle gradient should be provided in the crystalliser beds so that the bitterns can be drained effectively into the bittern channels and puddles of mother liquor are not left behind.

(*f*) The partitions in the crystalliser area should be given a proper slope to the bed level of the pans. In large crystallisers they should be pitched and given a correct angle of repose so that the wave action of the brine does not continually wash, away the edges and damage the partitions.

(*g*) Separate channels should be provided for the incoming brine and the out-going bitterns.

(*h*) Bitterns should be discharged before the harvesting of each crop.

(*j*) Even where the single irrigation system is followed, an attempt should be made to allow the crust to grow by accretion during the fair weather.

(*k*) The sale of salt by measure should be banned by law.

(*m*) Artificial evaporation in open direct fired pans should be discouraged. All alimentary salt and a good proportion of industrial salt should be manufactured economically by solar evaporation only. When salt of high grade purity is required and is not directly obtainable by solar evaporation artificial evaporation by vacuum evaporators is recommended.

CHAPTER VI

(A) A detailed geological survey of the Lake bed at Sambhar going down into the primary rock (the micaceous schist) should be carried out. Investigations to ascertain the origin of salt in the different deposits in Rajasthan and the causes for the difference in the composition of the brines should also be undertaken.

(B) The modified design of the percolation canal shown in Fig. 4 should be tried on a large scale. It is expected to reduce the maintenance cost and keep the canal in a serviceable condition long enough to compensate the initial cost.

(C) (*i*) The crystalliser beds should be drained of the bitterns before the collection of salt. The beds should be levelled and tamped hard so that the bitterns do not remain behind in puddles. As the beds have a layer of 3 to 9 in. of slush its removal is essential for improving the quality of salt produced.

(*ii*) The mother liquor should be drained, condensed brine, nearly saturated, should be let into the crystalliser and the salt crust should be washed in brine before raising.

(*iii*) All available salt should be extracted from the crystallisers before the outbreak of the rains. Even if it cannot be removed to the stores before the rains it should be heaped in the crystallisers and along the track and transferred to the stores as and when transport is available.

(*iv*) To prevent any salt being left over in the pans, the method of payment to labour may be modified.

(*v*) The present crystallising area should be reduced and converted into condensers as conditions warrant. This will reduce the cost of maintenance of crystallisers and facilitate the collection of salt. It will help in increasing the yield of salt and lower the cost of production.

(*vi*) Two grades of salt should be harvested, one between 26° and 29° Be and another between 29° and 32° Be. The exact limits should be determined for the different qualities of brine available by preparing a chart showing the progressive separation of salt on evaporation and co-relating it to the density and reduction in volume. This work should be done systematically and form part of the routine records and reports of the Works.

(D) The rain water that collects in the East Lake Bitterns Area and dissolves out the bitterns salts is a potentially rich source of common salt and should be exploited. A suitable method of disposal of the sewage of Sambhar town should be worked out to prevent its draining into this bitterns area.

(E) The production of salt in pans, utilising the brine from wells, should be undertaken under direct Government management on a large scale. Improved method for lifting the breine by pumps should be used and the pans should be laid out on more scientific lines. We also suggest that trials may be made by grouping a number of wells by a single pump.

(F) A permanent track should be laid from the bitterns area to the stores to convey the reshta salt.

(G) The present method of storing salt should be modified. Mechanical means should be employed for storing, bagging and loading salt in order to simplify the operations, reduce the labour employed and cheapen the cost.

(H) As washing experiment with Sambhar salt has shown the possibilities of bringing about an improvement in the quality, further experiments on a larger scale should be conducted with a view to introducing washing as a part of the manufacturing operations.

(J) A detailed investigation of the algae problem, as suggested by the late Dr. S.N. Ghosh, should be carried out at Sambhar by a trained algologist and a chemist.

(K) (*i*) Among the programme of maintenance of works shown in Table XXI the cleaning of crystallisers, condensers and the percolation canals should be given the first priority. Mechanical scrapers should be purchased to clean the percolation canals. Dragline tractors which can work from the embankments of the canals might be suitable for the purpose and their usefulness should be investigated. These excavations will also be useful in cutting new canals.

(*ii*) In the programme of Capital Works shown in Table XXI the following order of priority should be given among works of major importance and should be completed in the course of five years.

(*a*) the deepening of the Gudha Sambhar channel and the modifications of the East Lake Bitterns area ;

(*b*) the partitioning of the main reservoir ;

(*c*) the remodelling of Nawa.

(*iii*) Expenditure under items 9 and 10 which relate to the provision of a 2½ ft. gauge track in Nawa and the necessary rolling stock should be recalculated for the prevalent 2 ft. gauge track. If any modification in the initial transport system is contemplated it should be to the meter gauge system, but such a step is not recommended at this stage as the cost of conversion would be prohibitive.

(*iv*) Out of the programme of Capital Works shown in Table XXI, Items B2 and B5 which relate to the construction of percolation canals should be deferred until trial bores in the lake bed have been sunk to determine the best location btaining subterranean brine is carried out. Items B13 and B22 which relate to construction of stores should also be deferred until a decision is taken on the construction and location of a washery, as the future stores will have to be designed. on entirely different lines. Items B11 which relates to the electrification of Nawa should be closely examined and undertaken only after satisfying its essentiality.

(*v*) A mechanical washing plant should be installed without delay. The salt should be washed soon after it is raised in order to remove the impurities more easily and satisfactorily and stored only after it has been washed.

(*vi*) A well equipped laboratory with a suitable staff should be provided for carrying out the routine control tests and investigations of day to day problems.

(M) The size of the crystallisers at Sambhar lend themselves easily for mechanical harvesting and the possibility of using them at Sambhar should be investigated.

(N) Additional tipping wagons and locomotives should be provided to ease the transport problem at the works. The tipping wagons should be manufactured in future at the workshop at Sambhar after suitably increasing the equipment and the staff

(P) (*i*) The problem of removal of sodium sulphate from the brine or the bitterns should be subjected to a thorough study and investigations carried out simultaneously both in the laboratory and at the works in the field.

(*ii*) The mixed salt in the bitterns area constitutes a potential source of wealth and should be properly conserved for exploitation after a method has been devised for the recovery of their components.

(Q) The administration and the technical staff at the Works is inadequate and under the General Manager, the following technical staff should be provided :

(*a*) Chief Chemist,

(*b*) Chief Chemical Engineer,

(*c*) Chief Electrical and Mechanical Engineer and

(*d*) Chief Civil Engineer.

A cost accounting branch should be added to the Accounts section.

(R) In the interest of labour the composite rate for raising the salt and loading and unloading it should be split up into two different rates. The employment of contractors on manufacturing operations should be gradually eliminated and the labour should be engaged directly by the Works.

(S) A careful itemised revaluation of the assets of the Works should be carried out under different heads.

(T) (*i*) In the items of cost the largest item is the royalty and rents paid to the States of Jaipur and Jodhpur. They should be revised on the basis of the changed political structure of India and also as salt is no longer a source of excise revenue.

सत्यमेव जयते

(*ii*) Proper rate of depreciation should be provided in the cost and reserves built up which can be spent usefully for the proper maintenance of the Works.

(*iii*) Costs of salt will be reduced by the employment of pump wherever needed and the introduction of mechanical appliances.

(*iv*) The salt works should be treated as a commercial venture and a fair margin of profit at 10 per cent. of the capital block be allowed in arriving at the selling price. 50 per cent of the profits, that may accure should be paid to the General Revenue of the Central Government and 50 percent towards building a Reserve Fund to be utilised for future expansion and modification of the Works.

(U) The present practice of marketing the salt through a limited number of registered companies is not sound or healthily conceived. Salt should be distributed as widely as possible and no restriction should be placed in the way of the indentors getting their supplies direct from the Works if they so desire.

CHAPTER VII

(*a*) A detailed study of the strata of the lake upto the basic rock should be carried out.

(*b*) The pans should be realigned to a standard size with a width not less than 40 ft. and a length of 100 ft. or above. Regular pathways should be provided to facilitate collection and removal of salt.

(*c*) The quality of salt produced is unfit for human consumption and to prevent it being sold for this purpose it should be cast into blocks for use as salt licks for cattle.

(*d*) A 2 ft. gauge track within the Works for transporting the salt from the pans to the storage yard should be provided to cheapen the cost of haulage.

(*e*) The method of manufacture should be radically altered. Some of the crystallising pans near to each well should be converted into condesers and charged with brine from the end of October. As the evaporation progresses it should be replenished with fresh brine and when it is saturated with respect to Sodium chloride it should be transferred in the early hours of the day to the crystallisers. The brine in the crystallisers should not be allowed to rise above 28° to 29° Be' and the bitterns should be regularly eliminated in the hottest part of the day. In the winter months this procedure will yield edible salt and in the hot weather the salt obtained will be suitable only for making salt licks.

(*f*) The bitterns should be allowed to collect and dry up in a separate area until a method is evolved for the recovery of the byproducts.

(*g*) The sodium sulphate which deposits in the condensers should be collected at the end of the manufacturing season.

(*h*) The claim of the Deshwals to any hereditary reights of manufacture should be examined in the context of present day conditions.

(*i*) No central stores at Balia as proposed by the Works is necessary as it will involve double handling and additional establishment charges. Instead a metre gauge siding should be provided from the Didwana Works to the Balia Railway Station.

(*k*) All modifications and extensions in the layout of the Works should be carried out by Government at their own expense, the Deshwals being only allowed to conduct the manufacturing operations on a lease or licence.

(*m*) Pumps worked by diesel engines should be installed to lift brine from the wells.

(*n*) The existing staff is inadequate to carry out the modifications suggested by us and should be augmented including the appointment of a civil engineer. For close chemical control of the operations a full time Chemist with a laboratory for routine analysis and other control operations should be provided. In the interest of efficiency a separate Accounting staff should be provided.

(*p*) The extraction of sodium sulphate should be carried out at a faster rate by use of air drills which will also help to cheapen the cost.

(*q*) Sodium sulphate be sold in bulk and bagging should be dispensed with except where there is a break in the railway gauge.

(*r*) The selling price of Didwana sodium suplhate should be reduced to attract foreign buyers and to earn useful foreign exchange.

(*s*) The application of the German process of electrolysis of sodium supplhate should be investigated for the production of sulphuric acid, and caustic soda.

(*t*) The question of exploitation under a unitary control of the salt resources of Rajasthan including the byproducts should be examined by the Government of India and the Government of Rajasthan at an early date.

सत्यमेव जयते

CHAPTER VIII

(*a*) Proper records should be kept of the composition of the brines and of the salt produced in different pits. An investigation should be made at the proposed Research Station at Sambhar to determine the causes which lead to the lowering of the quality of Pachbadra salt and the abandonment of the pits.

(*b*) 100 pits per year should be renovated to increase the production at Pachbadra by 16,000 tons (4 lakh mds.) annually. The programme of renovating the pits should be determined with proper regard to the siding facility. New pits should be dug only if there are ample indications of copious supply of brine and there are no abandoned pits nearby which could be brought into operation. When the pits are renovated it should be seen that they are located at a distance of 300 ft. from the existing working pits.

(*c*) Advances to the Kharwals for the renovation of the pits should be adequate and paid in a single instalment at 2½ times the present amount.

(*d*) The discarded bitterns should be completely pumped out of the pit and led to a place at some distance or allowed to evaporate in a pan provided by the side of the pit. The salts that deposit between 28° to 32° Be' should be collected separately and put back into the pits to raise the density of the brine, the residual bitterns being used for the recovery of byproducts.

(*e*) The possibility of manufacturing salt by lifting the brine and evaporating it in regular pans lined with impervious clay should be investigated.

(*f*) We do not support the proposal of the Works for constructing a central stores near the Pachbadra railway station; nor do we approve of the suggestion to dig 60 new pits in the Hiragarh section for reasons stated in (*b*) and (*e*).

(*g*) The supply of drinking water to Pachbadra needs immediate attention, The possibility of supplying water from Balotra, Tilwara and Samdheri which are all a few miles from Pachbadra may be investigated.

(*h*) A full-time chemist with a laboratory for routine tests should be provided for Pachbadra for a better control of the manufacturing operations and sorting the salt into different grades. The analyses of the brine in the pit at the commencement of the manufacturing season, of the salt extracted and of the bitterns left behind should be recorded. A Civil Engineer should also be appointed to supervise the work of renovation.

CHAPTER IX

(*a*) Greater care and attention should be bestowed on the construction and maintenance of channels in order to reduce loss of brine by percolation and leakage.

(*b*) The recommendation of Dr. B.C. Roy, Geological Survey of India for a topographical and hydrographical survey together with geophysical investigation of the entire Kharaghoda area for locating sources of subterranean brine should be carried out.

(*c*) The suggestion of building a reservoir on the Little Rann to collect surface brine after the rains is not feasible and its consideration need not be pursued.

(*d*) The permanent railway track should be raised by one foot as recommended by Mr. M.D. Mithal. The reservoirs and crystallisers in low lying areas be similarly raised, by stages, to reduce the annual cost of renovating them.

(*e*) The construction of percolation canals is not a practical proposition and the idea should be abandoned. Similarly it is not feasible to provide perforated pipelines for collecting and carrying the subsoil brine to a central pumping station.

(*f*) The present type of wells should be replaced by tubewells in stages over a periods of 5 years and should be sunk in the brine horizon 150 ft. apart in 50 groups of 16 wells each. The brine should be lifted by mobile pumps driven by electricity.

(*g*) The size of the resevoir should be to 9,600 sq. ft. for a crystalliser of 20,000 sq. ft. Should the size of the crystalliser be made larger or smaller, the reservoir should be maintained at very nearly half the area of the crystalliser. This ratio should be verified by actual experiments at the works during the different periods before it is adopted.

(*h*) The quality of Kharaghoda salt can be considerably improved by mechanical washing. Washing tests should be carried out in some laboratory to determine the improvement in quality as also the effect, if any, on the size of the crystals.

(*j*) The production at Kharaghoda should be increased by utilising all the available pans each year as also by extending the manufacturing season till the middle, if not the end of June. To avoid incoenvncince caused to labourers working during the period of excessive summer heat, the working hours should be so adjusted as to allow recess during the hottest part of the day. Sale from the crystallisers should be collected twice during the season, the first crop early in March and the second at the end of May. To facilitate haulage, the B.B. & C.I. Railway should be asked to loan their locomotives for a longer period i.e., from 1st April to 30th June.

(*k*) The extension in the length of the stores building be carried out to accommodate a rake of 18 wagons under cover. The present method of storing should eventually give place to a more economical method. The possibility of using belt conveyors running along the length of the rake for raising the salt to the required height of the heap should be investigated. If this is not found feasible the present trestle bridges should be extended in length.

(*m*) A well equipped workshop to maintain and repair the mechanical equipment should be provided, once the recommendations for the installation of tube wells, pumps and washery are accepted by Government.

(*n*) A qualified Chemist should be appointed and provisions made for establishing a laboratory for carrying on routine chemical tests. To carry out field experiments one or two sets of reservoirs and crystallisers should be placed at the disposal of the Chemist. A Civil Engineer should be appointed and entrusted with the work of sinking tube wells and maintaining the railway sidings. A mechanical and electrical engineer should also be appointed to take charge of the workshop and power house and look after the maintenance of the mechanical equipment and rolling stock. A costing section should also be created.

(*p*) Labour at Kharaghoda is excessive and should be reduced by employing labour saving devices.

(*q*) A careful itemised valuation of the total assets of the works should be carried out.

(*r*) The present system of entursting the marketting of the salt to combines of registered dealers should be modified and an indenting system which would allow a larger number of buyers to purchase salt directly from the Works should be adopted.

CHAPTER X

KUDA

(*a*) Local geological investigation of the strata at Kuda on the lines recommended for Kharaghoda should be carried out, the good offices of the Geological Survey of India being secured for them.

(*b*) The manufacture and use of baragara salt for the soda ash plant is unnecessarily expensive and the salt works at Kuda should experiment with producing the ordinary type of Kurkutch salt by adopting methods prevalent in the marine salt works of Kathiawad.

(*c*) The development of new salt works at Kuda should not be undertaken unless adequate rail transport facilities and markets are made available . The new salt works, when started, should be laid out on scientific lines.

(*d*) The Saurashtra Government should carefully re-examine the possibility of railing the Kuda salt to Navalkhi for shipment to Calcutta. This will create a wider market for the Kuda salt and offer opportunities for expansion of production at Kuda.

RAJASTHAN

(*e*) Carefully planned and fairly complete investigations lasting over a full manufacturing season, should be carried out with a view to determining the possibility and details of process of manufacture in Bharatpur. Licences should be granted for salt manufacture only to a few licensees till a proper technique for dealing with the available brine has been worked out in the experimental unit. Though a compact area of 100 acres should be considered as the minimum economic unit of manufacture and units smaller than this area should not be allotted, these licensees may conduct manufactrue on an exploratory basis till the results of the experimental station are available.

KUTCH

(*f*) A systematic investigation of the Great Rann and the interior of Kutch should be conducted to determine the extent and availability of crust of salt, saline earths and brines.

SULTANPUR

(*g*) Before any attempt is made to produce salt on a large scale, the availability of brine and its composition and the area where it is present in abundance, should be determined by trial bores. Investigations should be carried out with the locally available clay to ascertain whether impervious clay beds could not be prepared. The economics of manufacture in this area should first be determined in an experimental unit which should be at least 10 acres in extent.

CHAPTER XI

(*a*) A detailed geological survey of the present mines and of the surrounding area to locate fresh deposits should be carried out to determine the extent of rock salt deposits in the country.

(*b*) The present method of mining or quarrying should not be continued for more than a year or two by which time, positive steps should be taken for introducing the method of mining by means of brine wells and installing evaporators for the production of good quality salt. In the intervening period the Mining Department of Himachal Pradesh should be provided with cheap mechanical appliances like drills air compressors etc. to facilitate the dry method of mining.

(*c*) For Mandi, we consider Thermo-compressor evaporation of brine as the most suitable method of producing high quality salt in view of the fact that hydro-electric power is readily available.

(*d*) The offer made by Messrs. Escher Wyss & Co. of Zurich, Switzerland for determining the best method of exploiting the salt deposits and drawing up general lay-out and plan for a suitable evaporator plant at a cost of Rs. 12,000 should be accepted and they may be asked to submit their recommendations as early as possible.

(*e*) For the development of the salt industry in Mandi, it is necessary to provide a railway link This can be done either by restoring the narrow-gauge line form Nagrota to Jogindernagar or by expanding the broad-gauge line from Nangal to Mandi town. The latter should be preferred as it offers considerable advantages in opening out this part of Himachal Pradesh.

(*f*) The manufacture of salt by solar evaporation of the brine obtained from the Maigal springs should be taken up by laying out an area of 20 acres. Experiments with different kinds of locally available clay to make the beds impervious should be also carried out. The Mining Engineer should be deputed to visit the solar salt works in different parts of the country like Kathiawad, Kutch and South India to study the methods in vogue there for adaptation to suit the conditions in Mandi.

(*g*) No attempt should be made to bottle Maigal spring brine for use either as mineral water or for culinary purposes.

(*h*) The manufacture of iodized salt should only be considered in conjunction with the installation of a brine evaporator plant.

(*j*) The Mining Engineer when he visits the solar works should also be asked to study the method of covering salt heaps with grass and clay as employed in Bombay and Madras.

(*k*) When the Salt Department of the Government of India takes over the administration of the Mandi mines from 1st April, 1950 it should reorganise the Mining Department and appoint a Chief Mining Engineer having considerable knowledge and experience in mining operations to take charge of the mines. The present Mining Engineer should be placed under the Chief Engineer; he should also be associated with the foreign technical personnel when the wet mining method is adopted.

CHAPTER XII

(*a*) For the Kathiawad and Kutch works a ratio of 1:5 or 1:6 between crystallisers and reservoirs cum condensers is ample and manufacturers should take steps to re-lay their works accordingly. As a result of this production can be doubled without any extensions.

(*b*) A laboratory should be maintained at each of the works to maintain a scientific control over the methods of manufacture.

(*c*) The manufacturing operations in Kathiawad and Kutch should not be stopped as a matter of traditional practice, the production should be kept going till the monsoon breaks and then also if heavy showers occur.

(*d*) The works at Kandla should start manufacture even when the brine in the creeks is 2° Be^{1} instead of waiting for it to rise above 3° Be^{1} in view of the comparatively low rainfall and the extensive space that the works have for storing and condensing brine.

(*e*) The crystallising area at Kandla should be increased from 72 acres to 150 acres by converting part of the condensers to crystallisers.

(*f*) Further expansion of the works at Jaffarabad should not be undertaken until better transport facilities are available at the port.

(*g*) In view of the poor transport facilities available at Velan Port no possibility exists at present for developing salt works there.

(*h*) The Government of India and the works at Kutch should get together and arrive at a solution which will enable the salt works at Kandla to continue in existence and the port of Kandla to be developed.

(*j*) The expansion of the salt industry in Kathiawad and Kutch should be harmonious with the development of the industry in India as a whole. There should be no unlimited expansion in the one concentrated area.

(*k*) Erection of new works in Kathiawad should be properly regulated and their concentration in any particular centre without due consideration the facilities of port, transport and labour should be avoided.

(*m*) The works should employ civil and mechanical engineers as also chemists to guide and control the manufacturing operations at all stages.

(*n*) The f.o.b. price of Kathiawad and Kutch salt should be reduced. The coastal shipping freight should also be revised and adjusted so that the Indian manufacturers do not have to pay a high rate than the Aden shippers.

(*p*) The salt from Kathiawad and Kutch should be sold only in Calcutta and no diversion should be allowed to go through Bombay.

सत्यमेव जयते

CHAPTER XIII

(a) *Dharasana Circle*

(*i*) The areas of the reservoir, condenser and crystalliser at the Chharvada and Dharasana salt works should be redistributed as follows :

	Chharvada Acres	Dharasana Acres
Reservoir	240	145
Condensers	320	195
Crystallisers	90	55
Bunds, storage, plateforms, etc.	40	25
	690	420

(*ii*) The Dharasana and Chharvada works should adopt the multiple irrigation system and for this purpose the officer in charge of the works should visit the neighbouring factories in Khathiawad to study the methods adopted there.

(*iii*) The method of manufacture should be improved to yield a better quality of salt.

(*iv*) No extension of the Dharasana factory should be undertaken until after the increased production which would result from the relaying of the two works finds a ready market.

(*v*) Mechanical devices like pumps for lifting brine and tipping wagons drawn by locomotives on 2 ft. gauge tracks should replace the operation at present carried out by manual labour. A railway siding should also be provided from the works to the Railway station of Dungari.

(*vi*) The cost of different items of manufacture should be maintained in order to fix the price payable to the Agarias. In fixing the sale price of the salt, depreciation of the salt works and the buildings should also be taken into account.

(b) *Bhayandar Circle*

(*i*) The works in the Bassein Range should be remodelled in accordance with our recommendations in the Chapter on Model Factories and Research Stations. The Shortage of brine supply which is experienced by the works in this range should also be remedied.

(*ii*) The works in the Dadar Range also need remodelling. The silt from the creek should be taken out and the impediments in the flow of brine be removed.

(*iii*) The practice of leasing our Government salt works to private parties should be stopped and these works should be run departmentally and converted to serve as model factories for the other works in the ranges in which they are situated.

(c) *Uran Circle*

(*i*) The manufacture of edible salt at Moti Works in the Shewa range should be improved by taking the following steps :—

(*a*) the practice of mixing dilute brine with concentrated brine to prevent salt crystallising out prematurely should be stopped;

(*b*) the use of sprays meant for rapid evaporation of the brine should be given up;

(*c*) the continuous agitation of the brine in the cement pans to produce small crystals of salt should be discontinued. The use of cement pans is unnecessary and expensive and ordinary pans with clay beds should be adopted.

(*ii*) The seven Government-owned works at Shiroda are too small to be operated as economic units. They should be either sold to the owners of the adjoining privately-owned works or formed into a co-operative society with the remaining nine privately-owned works and operated as a single unit.

(*iii*) As there are a large number of licensees at Sanikatta and the area of the individual works is extremely small, the licensees should form themselves into a co-operative society and all the works operated as a single unit if they are to survive competition.

(d) *General*

(*i*) The areas under salt cultivation in all circles other than Dharasana should be redistributed in the ratio of 1 : 7 to obtain a much larger production.

(*ii*) The method of manufacture should be modified in all the Bombay works and should be followed as indicated in paragraph.

(*iii*) The small manufacturers in Bombay should make serious attempts to coalesce into a large unit if they are to survive competition from the larger factories and continue in business. In order to induce the manufacturers to do so, to manufacture salt for such coalesced works licence should be granted for a minimum period of 25 years.

(*iv*) The manufacture of light grade salt should be progressively reduced and no light variety should be manufactured from the season 1950-51. The restriction should be strictly enforced and any manufacturer who does not conform to the instructions of the Salt Department should be penalised. In the meantime steps should be taken to enact legislation prohibiting the sale of salt measures.

(*v*) At the larger works central laboratories should be set up to control and guide the manufacturing operations.

(*vi*) Incidence of cost of labour is high. This is due to the fact that the out-put per man per month comes to only 3.67 tons (100 mds.) as compared with 10 tons (272 mds.) which is the lowest in Kathiawad factories. The system of piecework employed in Kathiawad factories should, therefore, be tried out to obtain a higher output at a lower cost.

(*vii*) Simple labour saving devices particularly trucks and trolleys for moving the salt from the pans to the storage yards should be introduced in the first instance in the larger works.

(*viii*) The selling price of salt in Bombay should be scrutinised by the Salt Department and lowered, if possible as the profit made by the manufacturers at present appears to be on the high side.

CHAPTER XIV

(*a*) Many of the works situated on the Manakudi Lake are not for off from the sea and the supply of sea brine to these works by digging channels or by installing a pumping station on the beach is under the consideration of the Government of Travancore and Cochin. An early decision in the matter should be taken to provide the salt works with adequate supply of sea brine.

(*b*) Where tube wells are in use, the manufaturers, should examine the possibility of using monel or high silicon iron tubes, as in America, instead of galvanised iron tubes as at present which get corroded in two or three years.

(*c*) To obviate unnecessary lifting of brine, a proper contour survey of the works should be carried out and the brine lifted only to the minimum required height. In many of the factories, small lessees have installed separate engines and pumps which only work for a few hours in a day. To lower the cost of production of salt as also to release the pumping sets for other purposes a common arrangement should be arrived at by which a fewer pumps could work continuously and supply the brine to all the smaller factories.

(*d*) A proper hydrographical survey should be conducted to locate good sources of brine and to avoid the sinking of tube wells in a haphazard fashion as at present.

(*e*) Since the Government of India are taking over the administration of salt in Travancore from 1st April 1950 the model factory should be taken over and operated by them.

(*f*) Production at Travancore can be considerably, increased by a redistribution of the area under cultivation The increased production can find a larger market in South Malabar if the price of Travancore salt is reduced.

(*g*) The crystallising areas are unnecessarily large in all the works, costing them more in their maintenance. They should be readjusted, depending on the initial density of the brine available.

(*h*) Bitterns should be discharged after every scraping to improve the quality of salt.

(*j*) The present method of double weighment once while storing and again while making sales is unneessary When salt is stored in heaps, its weight could be estimated from its cubical contents and it need be weighted only once when it is sold.

(*k*) Travancore manufacturers should attempt to produce salt by the multiple irrigation system during the longer season, to improve the quality of salt and to meet the requirement of the Bengal market.

(*m*) The present method of obtaining brine at the model factory should be re-examined. It would be cheaper to pump brine directly from the sea to the works.

(*n*) The slush washing pans devised at the Model Factory should be studied and adopted by other salt works which work on the single irrigation system.

(*p*) The model factory should be shifted to a more suitable site near the mouth of the Manakudi Lake where utilisation of both sea and tube well brine is possible.

(*q*) The size of several Travancore factories will have to be increased in order that they may form economic units of production.

(*r*) Technical Staff should be engaged at the works. Also analytical laboratories should be set up at the bigger works.

(*s*) The small units should be combined into big units working on co-operative basis, in order to bring about a reduction in cost, in addition to improvement in the quality of salt produced.

(*t*) Sale of salt by measure should be prohibited in the interests of the manufacturers and consumers in the area. In case the Union Government find any difficulty in taking immediate legislative measures, steps should be taken by the Government of India to introduce a clause in the licence prohibiting the charging of crystallisers with brine of less than 23° Be. This would automatically lead to the production of a heavy grade of salt.

CHAPTER XV

(a) *Naupada Circle*

(*i*) The Maharaja of Parlakimidi's works at Pundi should give a better yield that it does at present. Its area of crystallisers is disproportionately large as compared with the area under condensers. The areas should be re-distributed in order to give a ratio of 1 : 7 between the crystallisers and reservoir cum condensers. The area of the other factory at Pundi should also be re-distributed to the same ratio of 1 : 7 to give a still better yield.

(*ii*) The layout of the Bhavanapadu factories should be modified and the areas re-distributed to give a ratio of 1 : 6.

(*iii*) The layout of the Naupada factories should be modified and the areas re-distributed to suit the average density of brine used.

(*iv*) The factories at Konda and Bimilipatam should be increased to 100 acres and relaid in the ratio of 1 : 7 and worked as single units on co-operative lines. The factories at Calingapatam and Balacheruvu should be similarly relaid.

(*v*) Production in Naupada circle can be more than doubled by re-distributing the areas under cultivation. For those factories, using sea brine the ratio should be 1 : 7; those using pit brine in addition to the sea brine it should be 1:6

(*vi*) We do not recommend the construction of new salt works on the Kakrapalli swamp for supplying salt to the proposed soda ash factory at Sindri. If salt production in the Naupada Circle increases by a re-distribution of the areas under cultivation, the existing works would be able to meet a large part of the requirements of Sindri.

(b) *Pennuguduru Circle*

(*i*) The pollavaram factory should be relaid so as to give a ratio of 1 : 7. The licensees should also be combined to work the factory as a single unit. As this factory is a Government factory, the cost of relaying should be borne by Government and recovered from the licensees in easy instalments.

(*ii*) The factories in Jagannaickpur, Guruzanapalli, Pennuguduru and Pendraka should also be re-distributed in the ratio of 1 : 7 to give better quality of salt and a higher yield.

(*iii*) As there is a shortage of brine at Manginapudi, Chinnaganjam North, Chinnaganjam South and Pakala, a trial tube well should be sunk in each of these factories to determine the availability of brine supply and the economic depth to which wells should be sunk.

(*iv*) The Kanuparti factory should be permitted to manufacture and sell solar salt, provided they undertake to produce salt of 97-98 per cent. Sodium Chloride content. The factory should also be relaid in the ratio of 1 : 5. The Railway freight on salt from Kanuparti to Calcutta should be reduced to Rs. 20-6-8 per ton Re. 0-12-0 per md. so that its production could be sold in competition with Kathiawad salt.

(c) *Madras Circle*

(*i*) The areas of the factories in this Circle should be re-distributed. As most of the factories use pit brine the ratio should be 1 : 5. Small licensees should also be combined to form into co-operative societies so that the factories could be run as single units.

(*ii*) The area of about 564 acres near the Semmanjeri village on the road to Covelong can be leased out for a model factory either to a single party or to a co-operative society.

(d) *Cuddalore Circle*

(*i*) The Chunampet factory should be relaid to give a ratio of 1 : 5; the small holding should be combined with the larger works for economy in working.

(*ii*) The areas of the Markanam factory should be re-distributed in the ratio of 1 : 7.

(*iii*) The Manambady factory should be re-sited nearer the sea, if feasible, in order to obtain adequate supply of brine directly from the sea. Its area should also be increased to 100 acres.

(*iv*) The transquebar factory is very small and should be extended to at least 100 acres. It should in any case be operated as a single unit on a co-operative basis.

(*v*) The areas of the factories of Cheyur, Cuddalore and Neidavasal should be re-distributed in accordance with the quality of brine available. The area of the Cuddalore factory should also be extended to 100 acres.

(e) *Adirampatnam Circle*

(*i*) The quality of salt at the Vedaranyam factory should be improved by switching over to the multiple irrigation system and by relaying the works in the ratio of 1 : 3.

(*ii*) The Vedaranayam factory should be provided with a railway siding from Agastiyampalli railway station. As it might be difficult for the Railways to recover the cost of the siding from each of the licensees, the siding should be constructed at the cost of the Railway and the cost recovered from the manufacturers by levying a charge of Rs. 1-11-3 per ton (Re. 0-1-0 per md.) on the quantity of salt despatched.

(*iii*) The canal leading from the Vedaranyam factory to Topputurai and further on to Negapatam should be cleaned to permit salt to be sent to these ports for onward shipment to Calcutta.

(*iv*) With the availability of electric power the method of drawing brine by picotahs at Vedaranyam should be replaced by electric pumps. There should be common condensers to reduce the pumping cost and for this purpose the factory should be converted into a single co-operative unit.

(*v*) The collection of spontaneous salt from the Vedaranyam swamp should be organised on an extensive scale. Additional salt can also be recovered from the brine in the swamp by laying out pans along its northern fringe, provided arrangement is made for transport of salt either into the interior or by canals to ports for shipment to Calcutta.

(*vi*) The area of about 400 acres to the south of Vedarnayam factory could also be utilised for salt manufacture by using the high density brine from the swamp. The existing licensees at Vedaranyam might be given the first option to develop this site on a co-operative basis, provided they undertake to lay down the works on scientific lines.

(*vii*) The salt produced at Adirampatnam by Mettur Chemical Works can be improved by a better control on the elimination of bitterns. The area of the works should be increased to 100 acres and the areas under cultivation re-distributed. They should also adopt the multiple irrigation system in preference to the single irrigation system.

(*viii*) The other factories in Adirampatnam Circle should be increased to 100 acres each and re-aligned to give a ratio from 1 : 4 to 1 : 6.

(f) *Tuticorin Circle*

(*i*) The factories at Vepalodai and Arasadi should be extended to a minimum of 100 acres each. The factory at Arasadi should also be worked as a single co-operative unit.

(*ii*) The area of the factory at Sevandakulam should be re-distributed in order to give a ratio of 1 : 4.

(*iii*) The factory at Livingipuram should be re-modelled and operated departmentally by Government as a model factory.

(*iv*) The factory at Karapad should be relaid to give a ratio of 1 : 5 and the small licensees should be combined to form into a co-operative unit having a minimum of 100 acres.

(*v*) The five small works at Urani should be combined to form one single co-operative unit of 125 acres. The areas of all the works should be re-distributed so as to give a ratio of 1 : 5.

(*vi*) The factory at Urani Extension should be asked to adopt the multiple irrigation system in order to produce salt suitable for the Bengal Market.

(*vii*) The Kayalpatnam factory should be increased to 100 acres and along with the factory at Armuganeri should be converted into co-operative concerns and worked as a single unit.

(*viii*) The factory at Kulasekarapatnam is uneconomical and should be extended to 100 acres and relaid to give a ratio of 1 : 5.

(g) *General Recommendations*

(*i*) The single irrigation method should be replaced by the multiple irrigation system in the Cuddalore, Adirampatnam and Tuticorin circles.

(*ii*) The production of light variety of salt should gradually give place to the heavy variety. In Tuticorin and Adiram patnam circles, the Change-over should be completed within a period of three years whilst in the remaining four circles it may be extended to five years. The Salt Department should depute some of their officers in the Madras Province to visit the works of Mettur Chemicals, Travancore Model Factory and the factories at Kathiawad and Kutch to acquaint themselves with the method followed for producing the heavy salt.

(*iii*) The Madras Government should be requested to pass legislation banning the sale of salt by measure

(*iv*) We do not recommend any new salt works in the Madras Province till the factories improve the quality of their product suitable to the Calcutta market or until a demand arises for the export of salt to other countries.

(*v*) We estimate that the existing salt works could increase their production to more than 12 lakh tons (330 lakh mds) by improving their methods of production and by a proper re-distribution of the area under crystallisers, condensers and reservoirs.

(*vi*) The larger works should be induced to take on their staff technically qualified personnel and to establish analytical laboratories for the chemical control of manufacturing operations.

(*vii*) The larger salt works, more particularly in the Naupada and Pennuguduru circles, could reduce their cost of production considerably if they conduct the manufacturing operations by employing labour for each item of work instead of leaving the entire operations to gangs of labourers on a contract basis.

CHAPTER XVI

(a) *Balasore District*

(*i*) Large scale manufacture of salt by solar evaporation should not be undertaken in the Balasore District.

(*ii*) We do not support the suggestion of the Salt Manufacture Investigation Committee of Orissa that the punga process should be encouraged on any extensive scale. This process may be allowed to continue in the coastal villages as a cottage industry to meet strictly local requirements.

(*iii*) The Balasore district is not suitable for setting up a brine evaporator plant worked either by steam or electricity.

(*b*) *Cuttack District*

(*i*) Manufacture of solar salt in the Cuttack district does not appear to be feasible owing to heavy rainfall and a short manufacturing season.

(*ii*) Establishment of salt factories at Bhopal, Kharanasi and Bailkani as proposed by the Orissa Committee should not be undertaken till meteorological data of these localities over a period of 7 to 10 years are fully studied. We also do not support the proposal of the Orissa Committee to set up a salt factory at Harishpur, as the proposed area has already been converted into paddy lands.

(*c*) *Puri District*

(*i*) The area under salt cultivation of the Astarang Co-operative Society's factory should be re-distributed so as to give a ratio of 1 : 7 : 5 between the crystalliser and reservoir cum condensers. The size of the crystalliser should also be enlarged to a minimum of 2,000 sq. ft.

(*ii*) The proposal of the Society to do away with the control of the Salt Department cannot be accepted.

(*iii*) A loan of Rs. 20,000 should be advanced to the Society by the Orissa Government for providing pump, ring bund, etc. for the factory. The Society should also provide common reservoir and condensers and allot only the crystallising area to the members on a group basis. Proper roads and waterway facilities should be provided to the Society to make a success of their venture.

(*iv*) No new salt works should be established on the Chilka Lake until the effect of the Hirakud Project is fully determined.

(*d*) *Ganjam District*

(*i*) The areas under cultivation in Humma should be redistributed in the ratio of 1 : 7. The 23 small lessees who work about 145 acres at Humma should be persuaded to form themselves into a co-operative Society and work the area as a single unit.

(*ii*) The Gokhurkuda Co-operative Society should have common reservoirs and condensers in order to save on the pumping charges and economise on the expenditure on maintenance of individual sets of reservoirs and condensers. The area under cultivation by the Society should also be re-distributed in the ratio of 1 : 7 between the crystallisers and reservoirs and condensers.

(*iii*) The Salt Department should examine the complaints of the Gokhurkuda Society about the liability placed on them for maintaining the roads within their factory and providing rent free quarters to the staff of the Salt Department.

(*iv*) The area of the two salt works in Sumadi should be redistributed in the ratio of 1 : 7.

(*e*) *General Recommendations*

(*i*) To improve the quality of salt in Orissa the method of manufacture by single irrigation system as developed by the Model Factory at Travancore should be introduced.

(*ii*) The number of non-working members in the Co-operative Societies should be restricted.

(*iii*) The cost of operations in the Co-operative Societies can be reduced by installing common pumps and maintaining common reservoirs and condensers.

(*iv*) The Orissa Government should offer the Co-operative Societies easy loans and other financial help to meet the cost of laying out the works on proper scientific lines.

(*v*) The yield in the Orissa factories could be raised to 50 tons (1,000 mds.) per acre by proper re-distribution of the areas under cultivation. By this method as also by bringing in new areas under cultivation the production in Orissa can be increased substantially which would not only make the Province self-sufficient but also enable it to export about 1,65,000 tons (45 lakh mds.) of salt to Calcutta and the adjoining Province of Bihar.

(*vi*) The Orissa Government and the Salt Department should undertake a more detailed examination of the question of removal of the bund on Chilka canal.

(*vii*) The large private factories and the Co-operative Department of the Orissa Government should employ suitable technical staff to help the salt works in producing salt of better quality. Control laboratories should also be set up for routine analysis of the brine and the salt produced.

(*viii*) The employment of middlemen for engaging labour should be discouraged and the factories should recruit their labour directly.

CHAPTER XVII

(*a*) *Midhnapur District*

(*i*) The Bengal Salt Company should be advised to use only clay beds for the crystallisation of salt.

(*ii*) The manufacturing operations at these works should commence from November, when low density brine should be taken into the reservoir for concentration. The present area of 109 acres should be extended to 600 acres and distributed in the ratio of 1:11.

(*b*) 24 *Parganas*

(*i*) The Pioneer Salt Co. Ltd., of Sisirganj should start manufacturing operations from November in order that salt may start crystallising out from January. Unless dependable source of fuel supply can be established, they should not restart the boiling method of manufacture.

(*ii*) The present area of 30 acres under cultivation at these works is uneconomical; it should be extended to 400 acres. The ratio of crystalliser to reservoir cum condensers should be 1 : 11.

(*iii*) These works should employ a Chemist or a Chemical Engineer who should be made responsible for manufacturing operations.

(*c*) *General Recommendation*

(*i*) For planning large scale production at Contai a detailed large size map showing the topography and the contours of the sea-board should be prepared. Also detailed meteorological and technical data should be collected by a Special Officer of the Salt Department.

(*ii*) The question of transport of salt from Contai by canal as well as by rail should be examined.

(*iii*) Salt can be manufactured on a large scale in West Bengal only by the solar evaporation.

(*iv*) Manufacture of salt by the punga method on a large scale is not likely to meet with success.

(*v*) The Burma process might be tried out as an adjunct to the solar evaporation method for the manufacture of high grade salt only.

(*vi*) The Governmert of India and the Government of West Bengal should set up a large Government factory at Contan and also assist the private producers financially in order to encourage the development of the salt industry.

CHAPTER XVIII

(*a*) *Kharaghoda*

(*i*) The present method of allowing the bitterns to collect and evaporate in farans is highly westeful. Crude salt and carnallite could be recovered from the bittrens between 29° and 36° Be′. A set of two crystallising pans, one for crude salt and another for crude carnallite should be built along side the salt crystallising pans. The crude salt pans should be leased out to Agarias with the salt crystallising pans, while the Pioneer Magnesia Works should be given the first option to undertake the recovery of carnallite.

(*ii*) The method adopted by the Pioneer Magnesia Works to transport bitterns from the farans to their works is primitive. They should be asked to provide a pump for transferring the bitterns into tank wagons which should be hauled by locomotives and not by manual labour.

(*iii*) The use of magnesium chloride for the manufacture of exychloride cements and magnesium metal should be promoted.

सत्यमेव जयते

(*iv*) The recovery of magnesium sulphate by the Pioneer Magnesia Works is unsatisfactory and should be improved.

(*v*) The entire requirement of the country for magnesium sulphate could be obtained from the bitterns and recovery plants should be installed at some of the larger salt works in the country.

(*vi*) The lease of the Pioneer Magnesia Works which expires on 31st December 1953 should be renewed for a further period of 25 years if they undertake to modernise their plant for better and more efficient recovery of the byproducts, and agree to the other terms suggested by us.

(*vii*) The proposal of the Pioneer Magnesia Works to install an evaporator plant for the recovery of carnallite and a plant for the recovery of bromine should be deferred for the present.

(*b*) *Mithapur*

(*i*) The existing areas under bittern pans should be divided into two compartments, the first to be used for raising the density up to 32° Be′ for recovery of crude salt and the second for raising the density from 32° to 34° Be′.

(*ii*) The recovery of the by products should be improved to attain a more rational ratio between the common salt and the byproducts.

(*c*) *Kuda*

As conditions in Kuda are similar to these at Kharaghoda the recommendations made by us for the recovery of crude salt, carnallite and magnesium sulphate at Kharaghoda are equally applicable to Kuda.

(*d*) *General*

In view of its importance in the fertilizer and cement industries, the recovery of gypsum should be made a regular works practice in all the major salt works in the country.

CHAPTER XIX

(*a*) The potential capacity of the existing salt works in India is estimated by us at 40,26,000 tons (10,96,00,000 mds.

(*b*) In well designed marine works it is possible to produce solar salt of 98 per cent sodium chloride content.

(*c*) The sale of salt by measure should be abolished.

(*d*) The fragmentation of holdings lead to uneconomic cost of production and the lowernig of quality and yield. Smaller units should, therefore, be consolidated into economic units with a minimum area of 100 acres each.

(*e*) The number of labourers employed at present is excessive and leads to high cost of production. The system of employing labour by contractors also requires to be altered. The migratory character of labour employed in the salt works can be changed if the manufacturers were to stagger the work and find alternative employment for labour during the rainy season.

(*f*) The zonal system of distribution introduced by the Salt Department has done good work and should be continued, adjustments being made in the zones to reduce the maximum lead to 750 miles. As the Salt Administration in the Indian States has been taken over by the Salt Department of the Government of India the production in those States should also be brought under an equitable system of zonal distribution.

(*g*) The price of Indian salt as compared with prices in America and England cannot be considered excessive. There is however, room for reduction in the price of marine salt which should not exceed Re. 0-8-0 to Re. 0-12-0 per maund and for inland salt Re. 0-7-0 to Re. 0-9-0 per maund. These prices are for salt of 96 to 97 per cent sodium chloride content.

(*h*) Railway freights play an important part in determining the wholesale and retail price of salt. The present classification of railway freight should be revised and salt put on the same footing as foodgrains.

(*j*) The classification of refined and table salts should also be revised as the present rates are unjust to the manufacturers of these varieties.

(*k*) Salt for industrial use should be given special station to station rates, so that it may become available to the industries at a lower cost.

(*m*) The consumption of salt by live stock is negligible and every encouragement should be given to increase this consumption.

(*n*) Salt production in India could be increased by 1955-56 to 30 lakh tons (816.6 lakh mds.). The increase should be equitably spread out in all centres and excessive concentration of production in one centre should be avoided.

(*p*) The policy followed by Government regarding the import of foreign salt has an important bearing on production in the country. Since the Indian industry will achieve self-sufficiency by 1952, no further imports are necessary thereafter.

CHAPTER XX

(*a*) Owing to the primitive stage of development in the salt industry it is nessary for Government to set up model factories in principal salt producing centres.

(*b*) A model factory should have an area of 100 acres and should be designed to produce (i) gypsum, (ii) common salt, (iii) crude salt and (iv) mixed salts of potassium and magnesium.

(*c*) The respective areas of the components of the model factory are—

(*i*) Reservoirs	36 acres
(*ii*) Condensers	47 ,,
(*iii*) Common salt crystallisers	11 ,,
(*iv*) Crude salt crystallisers	0.5 ,,
(*v*) Channels, pathways, ridges & embankments	2 ,,
(*vi*) Storage yards, office laboratory etc.	3.5 ,,
	100.0 acres

These relative areas are based on the assumption that sea of a density of 3° to 3.5° Be' will be used. If brine of higher initial concentration is available suitable alteration in these areas should be made to suit the concentration.

(*d*) The model factory should be model both in its layout as well as the method of operation. The practices to be adopted in the factory for securing efficiency and good quality of salt are given in paragraphs 1.4.1 to 1.4.5 and they should be followed.

सत्यमेव जयते

(*e*) The yield of salt from model factory should be about 7,225 tons (7,000 tons from salt crystallisers+225 tons from crude salt pans). This yield is from a working season of 180 days of lifting.

(*f*) There should be 7 model factories in India, two in Bombay State, three in Madras State and one each in Travancore and Orissa.

(*g*) In the 3 model factories of Bombay, Travancore and Madras research units should also be set up for investigating methods for improving the quality and yield of salt.

(*h*) A separate research station should also be set up at Sambhar.

(*j*) The Salt Research Committee of the Council of Scientific and Industrial Research and these research units in the model factories should work in close collaboration with each other, in order that there is no overlapping of work,

(*k*) The cost of installing and operating the model factories should be borne by the Government of India.

(*m*) The staff at the model station and for the research units should be as recommended in paragraphs 3.1, 3.2 and 3.2.1.

(*n*) The capital expenditure of the model factories without research units is estimated at Rs. 1.5 lakhs per factory; with the research units the cost will be Rs. 2 lakhs per factory. The research unit at Sambhar will cost Rs. 1 lakh in addition to the amount of Rs. 75 thousand provided in the Chapter on Sambhar for extending the analytical laboratory there.

CHAPTER XXI

(*a*) The minimum sodium chloride content of 96 per cent proposed in the draft of the Indian Standards Specification for edible salt is on the low side and should be raised to at least 97.5 per cent. Likewise maximum limits should be prescribed for individual common impurities like magnesium and calcium salts and for carbonate and sulphates. A method of drawing samples from bulk consignments should also be provided. The Indian Standards Institution should examine these suggestions and make good the deficiencies in the draft specification before it is adopted.

(*b*) The Salt Department should arrange to collect systematically samples of salt regularly from the various factories and have them analysed. Salt found below the standard should either be denatured or destroyed and its sale as edible salt prevented. The provisions of Food Adulteration Act should be applied to edible salt.

(*c*) The larger factories should set up their own control laboratories and the small manufacturers should at least carry out visual rapid tests for assessing the quality of their product. Suitable rapaid methods of assay should be developed after research, if necessary, and made available in the form of a code of practice.

(*d*) Routine records of densities and analyses should be maintained in each factory and the Salt Department should examine how far and to what extent the maintenance of these records can be made obligatory as a condition of the grant of licenses.

सत्यमेव जयते

CHAPTER XXII

(*a*) The present organisation of the Salt Department should be modified and its present character of a collector of revenues should be changed to that of a development department.

(*b*) The re-constitution of the Department should be as shown in parabraph 1.4.

(*c*) The salt cess should be reduced from its present differential rates to a uniform rate of Re. 0-1-0 per maund and to be levied on the entire Indian Salt a uniform rate of Re. 0-1-0 per maund and to be levied on the entire Indian salt, if any.

(*d*) The heavy chemical industry especially the alkali industry should be allowed a rebate equal to the cess collected on the salt it actually consumes.

(*e*) The present elaborate staff for collecting the salt cess should be discontinued in favour of a simplified procedure of collection as recommended in 2.6.

(*f*) The payments under Treaty rights to former Indian States as compensation for prohibiting production of salt and in lieu of duty on salt consumed in the State do not appear to be justified in view of the abolition of the salt duty.

(*g*) (*i*) The management of Government salt works should be entrusted to a Statutory Corporation in order to obtain satisfactory control and supervision of these works. Such a Corporation should be jointly owned by the Governments of India and Rajasthan Union.

(*ii*) On the creation of the Corporation the present payment made to the Rajasthan Union under Treaty Rights should be revised and a frseh agreement arrived at for the lease of the salt sources to the Corporation.

(*iii*) The Corporation should be managed by a Board of Directors consisting of representatives of the Government of India, the Government of Rajasthan Union and of the salt industry.

(*h*) The present terms under which licences for the manufacture of salt are issued are rigorous and should be revised and simplified.

(*j*) (*i*) Wherever Government lands are leased out for salt manufacture, a uniform procedure with regard to the duration of the lease and the ground rent to be charged should be adopted.

(*ii*) Leasing or subletting of salt works on Government lands should not be permitted as a general rule.

(*k*) The policy of Government in giving 10 acre concessions should be modified. The concessions that have already been given should be merged into co-operative societies each having a manufacturing unit of a minimum of 100 acres and should be brought under the system of licensing.

(*l*) A Salt Advisory Committee consisting of representatives of the Government of India, the manufacturers, consumers and importers should be set up.

(*m*) The small local associations of manufacturers should be induced to federate into regional associations which could then come together to form an All-India Federation of salt manufacturers. Government might have to take a lead in bringing about this consummation.

सत्यमेव जयते

ANNEXURE 2.2

SUMMARY OF RECOMMENDATIONS MADE BY THE MANUBHAI SHAH COMMITTEE OF 1958

(1) Production of caustic soda and soda ash in the country is expected to increase very rapidly in the next few years and these two industries may require nearly a million tons of salt by 1961 and 2 million tons by 1966. Taking into account other industrial requirements such as food processing, fish preservation, treatment of hides and skins etc., the total demand for salt for all industrial purposes by 1961 and 1966 may be of the order of 1.1 million and 2.5 million tons respectively. Therefore, before long, far from having over-production of salt, special efforts may be needed to increase the production still further.

(2) It is necessary to provide chemical industries with salt of an appropriate high degree of purity; therefore, production of salt of as high a purity as possible for industrial requirements should be encouraged.

(3) There has been a fairly steady increase in the production of salt by large scale manufacturers during the last 10 years.

(4) Medium-size works (between 10 and 100 acres) have not played an important part in the growth of the salt industry during the last 10 years.

(5) In the small sector (works up to 10 acres) increased production of salt has taken place mainly in unlicenced works during the last 10 years and this increase has been phenomenal.

(6) The cost of production of salt per maund varies only in a limited way between works of different sizes under similar natural conditions.

(7) Production of salt for the same unit of area may vary between a range of as much as 1 to 10 in different parts of the country owing to the difference in climatic and other natural factors.

(8) The cooperative movement has not made any great headway in the salt industry during the last 10 years in spite of the cess concession and other encouragement to the part of Government.

(9) A part from ordinary edible salt, it is necessary to provide for production of special varieties of salt for special purposes, e.g., table salt, iodised salt and salt of special grades and special specifications required for the dairy and food industries.

(10) All manufacturers producing salt for trading purposes, regardless of the area worked, should come under a licencing and registration system. Works of more than 10 acres should be licensed and those with an area of 10 acres or less registered.

(11) A uniform system of licencing and registration should be evolved and made applicable to all manufacturers in the country and conditions of licence and registration kept simple and unambiguous.

(12) Salt cess should be levied on a graded basis, the first 5,000 maunds of a year's production of every salt factory to be exempted from levy of cess altogether, the next 10,000 maunds to be subject to cess at 50% of the prescribed rate, and the rest of the production to be charged cess at the full prescribed rate. Entire production of Cooperative Societies of salt manufacturers should be exempted from cess.

(13) The above scale of graded cess levy will be applicable to all salt works, licensed or registered.

(14) Rules for levy and collection of cess under the proposed system of licensing and registration should be drawn up by the salt Department.

(15) Government salt works should pay cess at the same rate as private works.

(16) An autonomous Central Salt Board should be set up for sanctioning and executing schemes relating to development works of the Salt Department. This Board should also be entrusted with the responsibility for welfare schemes for salt labour as also for the grant of financial help in the form of loans to salt manufacturers.

(17) Special assistance should be given to salt manufacturers in the matter of export of salt and a committee should be set up to draw up a suitable scheme for export promotion.

(18) Government lands should ordinarily be leased out for manufacture of salt for a period of 99 years and the term of the existing leases should be extended to this period of 99 years.

(19) No further assignment fee should be charged for Govt. salt land leased for manufacture of salt in the event of a transfer of lease from one party to another or extension of an existing lease.

(20) A Salt Development Credit Fund to be administered by the proposed Central Salt Board should be instituted for giving loans to cooperatives as well as other deserving manufacturers of salt.

सत्यमेव जयते

(21) To facilitate formation of economic holdings and re-alignment on scientific lines, salt lands belonging to Govt. should as far as possible be assigned to licensees already working on continuous areas.

(22) The State Govts. should be requested to take steps to ensure payment of a fair wage to all labour employed in the salt industry and as far as possible enforce the provisions of current labour laws in the industry.

(23) The Salt Dept. should have a "Labour Cell" and a "Statistical Cell".

(24) A Salt Labour Welfare Fund should be constituted and administered by the proposed Central Salt Board to improve the condition of labour employed in the salt industry.

(25) Cooperative Societies of salt manufacturers should be given loans from the proposed Salt Development Credit Fund and be also eligible for grants from the Salt Department. They should be given Govt. lands in preference to other manufacturers and on concessional terms. They should also be afforded assistance in other ways, e.g., through a training programme in cooperation, maintenance by the Salt Dept. of pool of personnel capable of giving guidance to such societies, active association of a trained official with the working of a newly organised society in the initial stages.

(26) Model uniform bye-laws for cooperative societies of salt manufacturers should be drawn up for adoption throughout the country.

(27) Consolidation of contiguous small works into larger and more economic units and their realignment on scientific lines should be encouraged, particularly by inducing licencees to organise themselves into cooperative societies.

(28) All manufacturers of salt in the country should try to attain the ISI standard of 96% NaCl for edible use. However, there should be no rigid enforcement of any prescribed quality standard. The Salt Department should give help and guidance in the matter of quality to salt producers at all stages of manufacture. Educative propaganda should be carried out by the Salt Dept. with a view to creating a demand for and securing production of good quality salt in the country. Steps should be taken to ensure that no export of salt below the specifications agreed to between exporters and foreign purchasers takes place in any instance.

(29) For some time, new licences should not ordinarily be issued in areas already having excess production of salt. In areas where production of salt is not developed, further production should be encouraged.

(30) Large-scale salt manufacturers should be encouraged to effect recovery of by-products of salt. No royalty should be charged on such bye-products.

(31) Salt should be included as a scheduled industry under the Industries (Development and Regulation) Act of 1951 and other provisions of that Act should also be given effect to as early as possible.

(32) The ISI may be requested to draw up revised standard for salt required for hide curing, having regard to the standards laid down in other countries.

(33) The annual administration reports of the Salt Dept. should be made available to the public. These reports as well as the annual reports of the proposed Central Salt Board should be laid before the Parliament every year.

(34) No new manufacture of salt by private parties should be permitted within a distance of 10 miles from the periphery of the Govt. salt works at Kharaghoda. In the case of Sambhar, the present restrictions on the manufacture of salt on lands surplus to the requirements of the Hindustan Salt Company should be withdrawn and salt manufacture by private parties permitted outside the Sambhar area. Pachbhadra, Luni and Phalodi area should also be thrown open to private manufacturers after these areas have been handed over to the State Govt. by the Salt Department on a suitable adjustment of annual rental.

(35) Sale of salt by weight should be adopted throughout the country.

(36) The Salt Department may examine the possibility of an arrangement under which it would certify after necessary test and inspection on receipt of a request from the party concerned, that a consignment of salt to be shipped to Calcutta from the West Coast or Tuticorin conforms to a particular quality standard.

(37) The Salt Dept. should see that the weighing scales kept at the Salkia Salt Golahs are maintained in a proper state of repair.

(38) The zonal scheme for distribution of salt should continue. The Salt Dept. should examine the possibility of reducing the number of zones.

(39) A common pattern of levy of charges payable by the lessees of salt lands belonging to the Central or State Governments should be adopted for the whole country. The ground rent should not exceed Rs. 2 per acre. Other levies like royalty, wherever in existence, should be abolished.

ANNEXURE 2.3

SUMMARY OF RECOMMENDATIONS OF PATEL COMMITTEE, 1947

1. *Industry to be nationalised*

The Salt Industry, in respect of which the present position is that the State is in direct control of about a third of the total production, should in the Committee's view be brought more fully under State control; this does not imply that the State should directly take over the rest of the production but merely that, in addition to a planned efforts to exploit to the utmost the salt resources under its direct control, it should also encourage and assist in the expansion of production by private sector of the industry should further be subject to control by the State in the matter of quality, price and distribution of the product, which three matters are dealt with more fully in the recommendations which follow.

2 *Over-all output*

The programme for the future development of the salt industry should be based on the target of complete self sufficiency in India's requirements of salt for human and animal consumption and for industrial purposes. Ample resources exist in order to make such an achievement possible.

The programme of development should be drawn up on the basis of an 8 years period. In the first three years of this period the target for production should be 2.2 million tonnes per annum as against the present production of 1.9 million tons. The further target should be that at the end of the second period of 5 years India's production should be 2.6 million tons per annum. The increase in production thus to be planned for would be approximately 40% over the 8 years. The achievement of these targets, which are conservative depends to a great extent on rapid mechanisation which in turn is dependent on the availability of machinery and on the co-opeation of the private producers many of whom are located in Indian States or are under their control.

The fear of over-production need not deter an attempt to raise the production beyond these targets as there is amlpe scope for increased consumption, particularly through raising the present per capita human consumption, through increasing animal consumption and in new industrial enter prises. There are also export possibilities which will absorb any surplus over India's requirements.

3 *Individual output targets*

The individual production targets for each separate group of salt works given in the attached booklet "Salt in India" and summarised in the first part of this report are accepted by the Committee. A substantial part of the expansion programme relates to salt works in States, but this fact need not be a deterrent, as it should be relatively easy to negotiate suitable agreements with the States concerned. It is therefore, un-necessary to devide on any priority distribution the production in India and in Indian States.

Details of expansion programme will have to be considered by technical experts, and in the course of such consideration, the Committee recommends that they should also examine what further expansion of production of Indian sources (as distinguished from State Sources) is practicable.

4 *Salt production in Stages.*

Under existing arrangements salt producing States are subject to a number of restrictions devised in order to safeguard the salt revenue of Indian and India has in turn to make annually large payments of the nature of compensation to certain States. It is considered that fresh salt agreements may be made only with (*a*) those States where the Indian Government desires to retain orobtain the concession to manufacture salt and (*b*) the States which are producing or propose to produce salt on a large scale for export to territories under the control of the Government of India. Salt produced in the latter States will of course become liable to the price and distribution control on entry into India so that control of production within such States will no longer be necessary.

The agreements with such States, should provide for the manufacture of salt of the required quality and quantity of salt for sale to the Dominion of India or to approved dealers in the Dominion, and should make it clear that salt so exported from the States will be subject to distribution and price control ex-ercised over salt in India.

In the case of certain States where salt production was stopped on the payment of annual compensation provided for under the existing agreements, it may be necessary to conclude temporary agreements since it is expected that the States will press for compensation for the interim period (which may be as long as two or three years) before siat works which have been closed for 60 or 65 years can again resume production on a reasonable scale.

5 *Measures to increase output*

The Committee accepts the method and schemes suggested by the salt Adviser contained in the first part of the report subject to a detailed examination by technical experts. It considers that private and Government investments necessary to achieve the contemplated increase are modest and acceptable.

It is recommended that the question of how private producers should be encouraged to uuse up-to-date methods, should be specifically examined by technical experts who should report to Government in due course.

6 *Quality*

Improvement in the quality of salt produced is evidently desirable. Since, however, matters such as local practices or prejudices have also to be borne in mind, concrete measures for improvement can be devised only after a detailed local examination. One obvious step is the establishment of model Government salt works and Government salt refineries in areas where private salt producers predominate and the possibility of establishing these should be examined.

7 *Distribution*

The interim report has already recommended re-introduction of the system of nominated traders in certain area to whom salt from the organised producers would be distributed. Subject to this recommendation, the Committee considers that the present channels of distribution need be modified only to the extent that it is necessary to do in order to abolish all un-necessary and therefore, expensive intermediary links.

The Committee considered the possibility of extending the Government controlled depots system described in paragraph 9 of Part I to other areas. While depots would help in avoiding breakdowns as a result of transport and other difficulties, it was considered that with an improvement in the transport position and larger imports coming through, wholesale dealres would be enable to build up their stocks, so that depots would not be strictly necessary. As the cost of constructing and maintaining new depots will be very high, the Committee does not recommend the introduction for the present of the depot system in other areas but would suggest further examination of this suggestion in the light of experiments. The Committee is of the view, however, that all wholesale dealers and stockists of salt should be required to carry a stock equal to tehir average sales for two months. These together with the quantity of salt ordinarily in transit and with retailers will provide a very satisfactory working reserves against emergencies.

8 *Prices*

It is considered desirable that price control should also be introduced and remain in force for some time. Such control should be effective an varirous stages like production, wholesale, distribution and retail sale. All salt, whether indigenous or imported, should be brought under Government control and sold at prices to be fixed by Government Enforcement machinery will generally have to be provided for by the Provinces although Central control would be maintained through the Central Salt Staff.

In order to make any scheme of price control effective, it is also necessary to terminate the widespread evil pract tised in Madras and Bombay markets, where salt is sold by measure and not by weight. The measures used, however, are not specifically related to any unit of weight and the manufacturers and the trade take advantage of the practic- of salt by measure. The manufacturers deliberately produce impure salt by uneconomic methods but possessed of the property that a given weight of this salt fills more measurefthan that of well-made purer salt. This impure light sale is sold by the manufacturers at a higher price than the superior heavy salt and the retailers purchase it readily since the extra profit that they realise by selling the light salt by measure more than makes up for the difference of cost. It is necessary to protect the consumer against such practices and legislative action should be taken to ensure that the measures used bear a definite relation to the unit of weight so that when the retail price per maund is fixed the price permeasure is also clearly defined.

9 *Issue of a Control Order*

A control order will be necessary for implementing the Committee's recommendations regarding production, distribution and the price of salt. The Committee recommend that, in accordance with the proposal made in the interim report of the Committee which has been approved by the Cabinet, an order should be issued immediately under the Essential Supplies (Temporary Powers) Act, 1946, on the lines of the draft Order given in Annexure I to the interim report, which would give Government among other powers, power :—

(*a*) to direct distribution of imported salt ;

(*b*) to fix prices (whether throughout the country or over limited areas, where at all stages, wholesale, retail etc., or at any one or most stages).

(*c*) to take suitable action against dealers and others who may hoard salt, and ;

(*d*) to direct stockists to keep at all times certain specified quantity of salt in stock.

10 *Comprehensive Legislation*

As the Essential Supplies (Temporary Powers) Act, 1946, is in itself a temporary enactment and the life of any control order issued under this Act will be limited to the life of the Act itself, it will be necessary to have a self-contained salt Act which should include relevant portion of the Central Excise and Salt Act of 1944 and, in addition, suitable provisions based on the amending Bill of 1947.

11 *Level of Prices*

It is recommended that the Government salt Industry should be run on a commercial basis, selling prices being fixed so as to allow for a reasonable margin of profit, say 6% it is expected that the economy resulting from the adoption of more efficient methods of production will more than cover the profit margin with the result that despite a profit margin prices may still show a downward trend.

12 *Governmental Organisation*

The Committee does not consider it necessary at this stage to set up a statutory Board of the Type contemplated in the Salt Bill. But the organisation within the Ministry to be made responsible for this matter, should for the time being, be established as an attached office, which will for all practical purposes approximate closely to the organisation contemplated in the draft Salt Bill. The Committee's recommendations is that there should be a Salt Controller as the executive head who should be assisted by a Financial Adviser and a Technical Officer. The Salt Controller should work directly under the Ministry, responsible for salt production and distribution.

13 *Ministry which should be made responsible*

The Finance Ministry which was until recently interested in the revenue to be realised from salt is at present responsible for the control over production, both Government and private.There are, however, strong grounds for continuing the present arrangements and the Finance Ministry itself is anxious that control should be entrusted to one of the Production Minstries. The Committee recommends that the Ministry of Industry and Supply should take over the responsibility for the development of the salt industry and the administration in all its aspects such as the control over distribution and price. The transfer to the I & S Ministry of Revenue, should be implemented within two months from the date on which the Cabinet approved the proposal.

During this period of two months arrangements should be made by the Ministry of I&S with the Central Board of Revenue for taking over on appropriate terms the staff experienced in Salt administration who are at present borne on the Central Excise Cadre. In view of the unpopularity of the "Salt Stations" it may be necessary to grant a suitable compensatory allowance when the staff is transferred to the Ministry of I&S as they will no longer be eligible for Central Excise posts which are located, as a rule, in centres where living conditions as less onerous. It will also be necessary to compensate the existing staff for the loss of their propspects in the Central Excise services, by conceding them, as a special case, the benefit of the 'next below rule.'

The transfer to the I&S Ministry of responsbilities for matters such as distribution, price control etc., which at present rests with the Ministry of Food, should be made effective at a very early date which should be agreed between the two Ministries.

सत्यमेव जयते

ANNEXURE 3.1(a)

CONSUMPTION PATTERN OF SALT FOR EDIBLE AND INDUSTRIAL PURPOSES DURING 1969 TO 1972

(Fgiures in '000 tonnes)

State/Union Territory/Bhutan/Nepal/Defence	Annual require-ment for H.C.	1969	1970	1971	1972		
					H.C.	I.C.	Total
Andhra Pradesh	260.4	226.3	252.9	243.7	242.7	21.7	264.4
Assam	96.0	88.4	85.6	81.2	113.0	1.8	114.6
Bihar	338.4	203.6	343.7	353.7	412.2	22.9	435.1
Gujarat	160.0	65.0	142.0	181.3	224.7	948.1	1172.8
Haryana	67.0	17.7	25.0	31.2	22.4	3.7	26.1
Karnataka	175.4	134.8	129.4	125.0	133.3	1.0	134.3
Kerala	127.7	56.8	64.0	50.1	38.5	42.3	80.8
Madhya Pradesh	248.7	234.0	234.2	245.2	264.7	87.1	351.8
Maharashtra	301.8	308.5	226.0	273.9	301.7	260.1	361.8
Orissa	131.6	141.3	249.0	143.7	153.9	35.4	189.3
Punjab	81.0	20.4	44.8	54.4	41.3	2.4	43.7
Rajasthan	154.4	112.6	106.3	124.7	92.7	36.5	129.2
Tamil Nadu	246.6	286.5	410.5	478.7	270.5	153.6	424.1
Uttar Pradesh	529.8	415.7	371.0	395.6	569.4	148.9	718.3
West Bengal	266.6	178.9	203.8	328.8	351.1	19.2	370.3
Himachal Pradesh	20.6	12.8	11.2	9.5	12.4	—	12.4
Jammu and Kashmir	27.7	24.5	23.3	28.1	39.7	—	39.7
Manipur	6.4	0.2	—	1.9	4.6	—	4.6
Meghalaya	—	—	—	—	2.1	—	2.1
Mizoram	—	—	—	—	—	—	—
Nagaland	3.1	2.0	1.0	3.6	3.6	—	3.6
Sikkim	—	—	—	—	0.3	—	0.3
Tripura	9.3	1.0	3.3	9.0	5.2	—	5.2
A & N Islands	—	—	—	—	—	—	—
Arunachal Pradesh	2.7	0.9	0.4	1.1	1.7	—	1.7
Chandigarh	1.8	1.2	1.6	1.5	2.0	—	2.0
Delhi	24.3	36.2	22.3	41.8	13.9	31.5	45.4
Goa, Daman and Diu	—	—	—	—	—	—	—
Pondicherry	—	—	—	—	1.2	—	1.2
Bhutan	—	—	—	—	—	0.1	0.1
Nepal	—	31.4	35.2	36.6	78.8	—	78.8
Defence	—	3.0	5.3	8.8	10.2	—	10.2
Total	3281.3	2603.7	2991.8	3253.1	3404.9	1816.2	5221.1

सत्यमेव जयते

H.C.—Human Consumption.

I.C.—Industrial Consumption.

ANNEXURE 3.1(b)

CONSUMPTION PATTERN OF SALT FOR EDIBLE AND INDUSTRIAL PURPOSES DURING 1973 AND 1974

(Figures in '000 tonnes)

State/Union Territory/Bhutan/Nepal/Defence	Annual requirement for H.C.	1973			1974		
		H.C.	I.C.	Total	H.C.	I.C.	Total
Andhra Pradesh	260.4	262.7	19.2	281.9	292.3	25.1	317.4
Assam	96.0	61.5	1.2	62.7	118.8	—	118.8
Bihar	338.4	400.6	16.8	417.4	407.7	15.7	423.4
Gujarat	160.0	242.6	884.8	1127.4	209.7	949.0	1158.7
Haryana	67.0	20.5	10.0	30.5	20.6	10.8	31.4
Karnataka	175.4	156.9	0.4	157.3	146.2	0.3	146.5
Kerala	127.7	53.3	40.7	94.0	35.9	41.2	77.1
Madhya Pradesh	248.7	268.1	99.7	367.8	254.4	112.0	366.4
Maharashtra	301.8	297.2	198.0	495.2	270.3	211.0	481.3
Orissa	131.6	157.6	37.5	195.1	160.0	32.4	192.4
Punjab	81.0	30.7	0.3	31.0	29.2	1.0	30.2
Rajasthan	154.4	42.5	22.2	64.7	109.5	60.4	169.9
Tamil Nadu	246.6	295.0	126.7	421.7	277.7	150.7	428.4
Uttar Pradesh	529.8	367.4	72.2	439.6	498.4	74.2	572.6
West Bengal	266.6	303.6	22.6	326.2	301.6	35.9	337.5
Himachal Pradesh	20.6	10.6	—	10.6	9.5	—	9.5
Jammu and Kashmir	27.7	13.5	—	13.5	23.6	—	23.6
Manipur	6.4	3.9	—	3.9	6.3	—	6.3
Meghalaya	—	0.1	—	0.1	2.3	—	2.3
Mizoram	—	—	—	—	1.2	—	1.2
Nagaland	3.1	2.1	—	2.1	3.1	—	3.1
Sikkim	—	—	—	—	0.4	—	0.4
Tripura	9.3	3.7	—	3.7	11.4	—	11.4
A & N Islands	—	—	—	—	—	—	—
Arunachal Pradesh	2.7	1.0	—	1.0	0.7	—	0.7
Chandigarh	1.8	1.3	—	1.3	1.3	—	1.3
Delhi	24.3	15.8	30.7	46.5	16.1	28.0	44.1
Goa, Daman & Diu	—	0.4	—	0.4	0.2	—	0.2
Pondicherry	—	1.1	—	1.1	0.8	—	0.8
Bhutan	—	—	—	—	—	—	—
Nepal	—	35.7	—	35.7	55.8	—	55.6
Defence	—	8.0	—	8.0	1.4	—	1.4
Total	3281.3	3057.4	1583.0	4640.4	3266.2	1747.7	5013.9

H.C.—Human Consumption.

I.C.—Industrial Consumption.

ANNEXURE 3.1(c)

CONSUMPTION PATTERN OF SALT FOR EDIBLE AND INDUSTRIAL PURPOSES DURING 1975 AND 1976

(Figures in '000 tonnes).

State/Union Territory/Bhutan/Nepal/Defence	Annual requirement for H.C.	1975			Annual requirement for H.C. from 1976	1976		
		H.C.	I.C.	Total		H.C.	I.C.	Total
Andhra Pradesh	260.4	240.6	37.3	277.9	300.0	233.6	43.6	277.2
Assam	96.0	118.3	—	118.3	125.0	99.2	—	99.2
Bihar	338.4	418.2	17.9	436.1	396.0	447.3	17.9	465.2
Gujarat	160.0	215.9	1143.0	1358.9	184.0	174.2	1023.8	1198.0
Haryana	67.0	28.4	7.6	36.0	70.0	38.3	16.5	54.8
Karnataka	175.4	139.5	41.3	180.8	202.0	170.2	22.4	192.6
Kerala	127.7	40.6	35.9	76.5	147.0	53.8	43.6	97.4
Madhya Pradesh	248.7	268.7	113.6	382.3	291.0	291.4	130.8	422.2
Maharashtra	301.8	268.7	231.5	500.2	348.0	298.4	164.1	462.5
Orissa	131.6	166.2	32.5	198.7	152.0	219.5	17.2	236.7
Punjab	81.0	40.6	0.1	40.7	94.0	62.2	0.1	62.3
Rajasthan	154.4	116.5	56.7	173.2	180.1	114.3	62.3	176.6
Tamil Nadu	246.6	242.1	116.7	358.8	284.0	235.2	125.9	361.1
Uttar Pradesh	529.8	477.7	78.1	555.8	614.0	440.1	79.0	510.1
West Bengal	266.6	350.3	29.4	379.7	307.0	288.2	14.1	302.3
Himachal Pradesh	20.6	7.9	—	7.9	24.0	10.6	—	10.6
Jammu & Kashmir	27.7	28.8	—	28.8	32.0	22.2	—	22.2
Manipur	6.4	4.4	—	4.4	8.1	3.6	—	3.6
Meghalaya	—	4.4	—	4.4	7.6	5.7	—	5.7
Mizoram	—	1.2	—	1.2	2.5	1.4	—	1.4
Nagaland	3.1	0.8	—	0.8	3.9	2.1	—	2.1
Sikkim	—	0.6	—	0.6	1.9	12.5	—	4.5
Tripura	9.3	8.3	—	8.3	12.7	12.9	—	12.9
A & N Islands	—	—	—	—	—	—	—	—
Arunachal Pradesh	2.7	1.7	—	3.4	3.5	1.3	—	1.3
Chandigarh	1.8	0.8	—	1.8	2.1	1.6	—	1.6
Delhi	24.3	35.1	32.6	67.7	29.2	39.0	29.2	68.2
Goa, Daman and Diu	—	0.1	—	0.1	5.9	0.4	—	0.4
Pondicherry	—	0.9	—	0.9	5.3	1.5	—	1.5
Bhutan	—	1.4	—	1.4	4.6	1.8	—	1.8
Nepal	—	56.9	—	56.9	—	54.2	—	54.2
Defence	—	3.0	—	3.0	4.6	5.7	—	5.7
Total	3281.3	3289.3	1974.2	5263.5	3884.2	2334.4	1790.5	5121.9

H.C.—Human Consumption
I.C.—Industrial Consumption

ANNEXURE 3.1(d)

CONSUMPTION PATTERN OF SALT FOR EDIBLE AND INDUSTRIAL PURPOSES DURING 1977 AND 1978

(Figures in '000 tonnes)

State/Union Territory/Bhutan/Nepal/Defence	Annual requirement for H.C. from 1976	1977			1978		
		H.C.	I.C.	Total	H.C.	I.C.	Total
Andhra Pradesh	300.0	232.4	46.9	276.3	228.1	57.7	285.8
Assam	125.0	128.3	1.5	129.8	112.7	4.6	117.3
Bihar	396.0	455.5	25.6	461.1	573.1	19.6	592.7
Gujarat	184.0	239.6	338.7	1378.3	216.6	096.8	1313.4
Haryana	70.0	39.4	11.9	51.3	27.8	21.0	48.8
Karnataka	202.0	186.7	42.6	229.3	176.4	30.2	206.6
Kerala	147.0	42.4	48.2	90.6	50.8	52.7	103.5
Madhya Pradesh	291.0	361.8	116.5	478.3	252.9	95.8	348.7
Maharashtra	348.0	338.7	202.5	541.2	351.4	249.5	600.9
Orissa	152.0	247.3	22.5	269.8	228.2	33.2	261.4
Punjab	94.0	55.0	—	55.0	34.8	—	34.8
Rajasthan	180.1	121.7	49.6	171.3	130.9	45.9	176.8
Tamil Nadu	284.0	353.6	124.9	478.5	498.2	204.6	702.8
Uttar Pradesh	614.0	557.2	67.9	625.1	532.3	75.2	607.5
West Bengal	307.0	165.7	9.9	175.6	318.9	10.6	329.5
Himachal Pradesh	24.0	15.7	—	15.7	9.5	—	9.5
Jammu and Kashmir	32.0	28.5	—	28.5	21.6	—	21.6
Manipur	8.1	2.8	—	2.8	4.3	—	4.3
Meghalaya	7.6	3.9	—	3.9	8.4	—	8.4
Mizoram	2.5	—	—	—	0.1	—	0.1
Nagaland	3.9	2.3	—	2.3	3.8	—	3.8
Sikkim	1.9	1.1	—	1.1	1.7	—	1.7
Tripura	12.7	11.0	—	11.0	14.5	—	14.5
A & N Islands	—	—	—	—	—	—	—
Arunachal Pradesh	3.5	1.5	—	1.5	2.2	—	2.2
Chandigarh	2.1	2.7	—	2.7	1.9	—	1.9
Delhi	29.2	41.8	36.9	78.7	36.7	43.0	79.7
Goa, Daman and Diu	5.9	0.6	—	0.6	2.4	—	2.4
Pondicherry	5.3	0.8	—	0.8	1.1	—	1.1
Bhutan	4.6	3.2	—	3.2	2.5	—	2.5
Nepal	—	66.3	—	66.3	54.1	—	54.1
Defence	4.6	5.6	—	5.6	6.0	—	6.0
Total	3884.2	3713.1	1933.1	5646.2	3903.9	2040.4	5944.3

H.C.—Human Consumption.

I.C.—Industrial Consumption.

ANNEXURE 3.2

PROJECTED DEMANDS OF SALT FOR HUMAN CONSUMPTION, INDUSTRIAL CONSUMPTION AND EXPORTS—STATEWISE—DURING THE YEARS FROM 1980 TO 1988

(Figures in '000 tonnes)

State/Union Territory	1980	1981	1982	1983	1984	1985	1986	1987	1988
Human Consumption									
Andhra Pradesh	304	309	313	319	324	329	333	338	343
Assam	118	122	125	130	143	138	141	145	149
Bihar	404	410	418	424	432	439	446	452	460
Gujarat	194	198	202	206	210	214	217	221	225
Haryana	73	74	76	78	80	81	82	84	86
Karnataka	209	214	218	221	225	229	232	236	239
Kerala	153	155	158	161	164	166	169	172	174
Madhya Pradesh	311	318	325	332	339	346	354	362	370
Maharashtra	361	367	371	377	382	389	395	402	407
Orissa	159	163	165	168	171	173	177	180	183
Punjab	94	96	98	99	101	102	104	105	107
Rajasthan	196	200	206	211	215	221	226	231	235
Tamil Nadu	280	284	287	289	293	296	299	302	306
Uttar Pradesh	626	634	645	657	667	678	688	698	707
West Bengal	328	336	342	350	356	363	370	376	382
Himachal Pradesh	25	25	26	26	26	27	28	28,	29
Jammu and Kashmir	35	35	37	37	38	39	40	41	42
Manipur	8	8	9	9	10	10	10	10	11
Meghalaya	7	8	8	8	8	8	9	9	9
Nagaland	4	4	4	4	5	5	5	5	5
Sikkim	1	1	2	2	2	2	2	2	2
Tripura	12	13	13	13	13	14	14	15	15
A & N Islands	1	1	1	1	1	1	1	1	2
Arunachal Pradesh	4	4	4	4	4	4	4	4	5
Chandigarh	2	3	3	3	4	4	4	5	5
Dadra and Nagar Haveli	1	1	1	1	1	1	1	1	1
Delhi	36	37	38	41	42	42	45	47	48
Goa, Daman and Diu	6	7	7	7	7	8	8	8	9
Lakshadweep	1	1	1	1	1	1	2	2	2
Pondicherry	3	4	4	4	4	4	4	4	5
Total	3956	4032	4107	4183	4259	4334	4410	4486	4563
Industrial Consumption									
All States	2750	2910	3030	3190	3360	3490	3730	4030	4280
Exports									
Gujarat and Tamil Nadu	286	313	340	367	394	396	423	425	452
Grand Total	6992	7255	7477	7740	8013	8220	8563	8941	9295

NOTE:—Assam is inclusive of Mizoram.

ANNEXURE 4.1(a)

STATEWISE PRODUCTION OF SALT FROM VARIOUS SOURCES DURING 1969 TO 1974

(figures in '000 tonnes)

Source	1969		1970		1971		1972		1973		1974	
	Sea	Inland	Sea	Inland	Sea	Inland	Sea	Inland	Sea	Inland	Sea	Inland
Andhra Pradesh	201	—	198	—	263	—	406	—	290	—	321	—
Goa, Diu and Daman	11	—	11	—	9	—	14	—	12	—	12	—
Gujarat	2324	921	2352	991	2189	824	2777	993	2855	1477	2757	835
Kerala	1	—	—	—	1	—	—	—	—	—	—	—
Karnataka	12	—	9	—	14	—	15	—	20	—	14	—
Maharashtra	461	—	428	—	471	—	581	—	541	—	382	—
Orissa	13	—	57	—	25	—	87	—	57	—	73	
Pondicherry	—	—	—	—	—	—	1	—	1	—	1	—
Rajasthan	—	287	—	247	—	343	—	340	—	279		353
Tamil Nadu	850	—	1040	—	1086	—	1105	—	1059		985	—
West Bengal	13	—	12	—	3	—	14	—	10		10	—
Total	3886	1208	4107	1238	4061	1167	5000	1333	4845	1756	4555	1188
Rock salt												
Himachal Pradesh	—	4	—	4	—	4	—	5	—		—	5
Lake salt												
Rajasthan	—	75	—	239	—	194	—	179	—	255	—	165
Grand Total		5173		5588		5426	6517	6517		6860	5913	

ANNEXURE 4.1(b)

STATEWISE PRODUCTION OF SALT FROM VARIOUS SOURCES DURING 1975 TO 1979

(figures in '000 tonnes)

Source	1975		1976		1977		1978		1979	
	Sea	Inland	Sea	Inland	Sea	Inland	Sea	Inland	Sea	Inland
Andhra Pradesh	310	—	308	—	281	—	351	—	322	—
Goa, Diu and Daman	13	—	4	—	8	—	14	—	12	—
Gujarat	2583	712	955	531	2174	752	2231	1324	1986	1792
Kerala	—	—	—	—	—	—	—	—	—	—
Karnataka	16	—	20	—	9	—	13	—	27	—
Maharashtra	408	—	449	—	557	—	466	—	520*	—
Orissa	46	—	84	—	37	—	69	—	73	—
Pondicherry	1	—	1	—	—	—	1	—	1	—
Rajasthan	—	351	—	165	—	340	—	486	—	657
Tamil Nadu	1333	—	1540	—	1157	—	1720	—	1571	—
West Bengal	15	—	15	—	10	—	5	—	13	—
Total .	4725	1063	3376	696	4233	1092	4870	1810	4525	2449
Rock salt										
Himachal Pradesh	—	3	—	4	—	4	—	4	—	4
Lake salt										
Rajasthan	—	52	—	—	—	—	10	10	10	59
Grand Total		5843		4076		5329		6694		7037

सत्यमेव जयते

ANNEXURE 4.2

DETAILS OF LOCATION AND EXTENT OF SOME LARGE TRACTS OF SALINE LANDS AVAILABLE FOR EXPLOITATION OF SALT

Location	Area (Acres)
1	2
ANDHRA PRADESH	
Marripadu, Srikakulam District	745
Cheeppurupalli, Vizag District	962
Devada, Vizag District	1700
Polekuru, East Godavari District	3000
Koringa, East Godavari District	2000
Narasapur, West Godavari District	1800
Kara Agaraharam, Bandarkota, Sattenapalam, Polapatippala Kona, Krishna District	4000
Kammanamolu (Divi Taluk), Krishna District	2040
Padarthi, Prakasam District	3950
Kudiri, Nellore District	4000
Gogulapalli, Nellore District	1600
GUJARAT	
Navalakhi, Rajkot District	600
Jhajasar Village, Maliya (Miyana) Taluk, Rajkot District	150
Haripur Village, Maliya (Miyana) Taluk, Rajkot District	250
Bhavnagar, Bhavnagar District	2500
Kalatalao, Bhavnagar District	1500
Ratnapar, Bhavnagar District	482
Sarlapur (Talaja Taluk), Bhavnagar District	200
Tavasar (Talaja Taluk), Bhavnagar District	200
Vadva, Bhavnagar District	1957
Padana, Kutch District	300
Shikarpur, Kutch District	253
Nambaraja, Jamnagar District	216
Datardi, (Rajula Taluk), Amroligar District	1100
South Gujarat	15000
MAHARASHTRA	
Dahanu Area (Dahanu Taluka), Thana District	7000
Makunsar Area (Palghar Taluka), Thana District	850
Rewas Area (Alibagh Taluka), Kolaba District	800
Akshi Area (Alibagh Taluka), Kolaba District	700
Revdanda Area (Alibagh Taluka), Kolaba District	250

सत्यमेव जयते

1	2
MAHARASHTRA—*contd.*	
Revdanda Chawl Area (Alibagh Taluka), Kolaba District	250
Srivardhan Area (Srivardhan Taluka), Kolaba District	800
Karsee Agaruada Area (Mhasla Taluka), Kolaba District	700
Mirya Area (Ratnagiri Taluka), Ratnagiri District	350
Shirgaon Area (Ratnagiri Taluka), Ratnagiri District	200
Kasari Area (Ratnagiri Taluka), Ratnagiri District	450
ORISSA	
Mohanpur, Kantipur, Krishnapur, Bideipur and Kainthkhale villages of Balasore District	40000
Chandipur village, Balasore District	2000
Shadabadi and Harishpur, Cuttack District	1200
Palur, Ganjam District	2000
Navanpur, near Gopalpur, Ganjam District	700
Surla, Ganjam District	1500
TAMIL NADU	
Palakayal and Punnakayal villages, Tirunelveli District	2000
Vaipar, Tirunelveli District	750
Vembar and Naripayur, Ramnad District	800
Uchipulli near Mandapam, Ramnad District	700
Devipatnam and Uppur, Ramnad District	800
Mamisal near Soundarapandiapatnam, Ramnad District	300
Near Adiramapatnam, Tanjore District	450
Vedaranyam swamp (near Muthupet), Tanjore District	6000
Great Vedaranyam swamp in Tanjavur District	5000
Neidavasal, Tanjore District	250
Kandadu swamp (Tindivanam Taluk), South Arcot District	100
Between Voyalur and Pulicat Lake, Chingleput District	500
WEST BENGAL	
Block "A", Contai coastal belt, Midnapur District	1384
Block "B", Contai coastal belt, Midnapur District	2059

ANNEXURE 4.3

BRINE SPRINGS IN THE NORTH-EASTERN REGION

(*Source* : Geological Survey of India)

ASSAM

Brine wells and springs are the important sources of salt in the State. Brine springs occur in various places in the Lakhimpur and Cachar Districts. Salt was at one time recovered in the North-Eastern part of Hailkandi and near Sadiya and Jorhat.

ARUNACHAL PRADESH

While studying the upper territory of the Rewta river section, east of Bhairabkund and Dishnoi river sections in the Kamong District, saline efflorescence was observed in sand stones in a number of places. Salt licks are also known to exist in the Subansiri District.

In the Tirap District, brine and saline springs are well known. Such springs and "Wells" have been reported around Borduria and Laptang. The brine wells in the Tirap District were once the main source of salt in the region but with cheaper import of salt the local source has been neglected. It may be noted that unlike coastal areas, the recovery of salt from these Springs will require fuel for heating.

MANIPUR

A number of salt springs occur in Waikhung, Kikhong, Chandrakhong and Keithalmanbai along the foot hills in the eastern part of the Imphal valley. These springs appear to be located along a probable fault zone. Most of the springs are being tapped by local people by driving one metre diameter lined wells for the manufacture of salt on a small scale. Exploratory drilling in the area is necessary to determine the yeild in these springs. Brine Wells occur west of Challao, south-east of Chingai, Mariemphung, Luchai Khulan and Kharasom in the Manipur East District.

NAGALAND

Salt and brine springs are fairly common in Nagaland, generally confined to the Disang formations. A complete analysis of about 10 brine samples by the State Department of Geology and Mining from different salt springs in the Kohima and Tuensang Districts, indicates that they vary greatly in their degree of saturation, the maximum dissolved salt being about 5.5%.

Salt springs associated with the Disang formation have also been recorded in Akhighwo, Lephori, Lacham in the Phek District and Pelickima and Intuma villages in the Kohima District.

सत्यमेव जयते

ANNEXURE 4.4(*a*)

DETAILS OF LICENCED SATL WORKS IN 1960 BY STATES, CATEGORIES AND SECTORS

State	No. of licensees				Licensed area (acres)				Area worked (acres)				No. of SW		Area worked (acresas)	
	I	II	III	Total	I	II	III	Total	I	II	III	Total	Pub.	Pri.	Pub.	Pri.
Andhra Pradesh	19	66	1995	2080	7739	177	4352	13867	3329	608	2622	6559	—	2080	—	6559
Gujarat	32	12	483	527	51797	855	4018	56670	32584	528	3792	36904	1	526	223	36681
Himachal Pradesh	1	—	—	1	2	—	—	2	2	—	—	2	1	—	2	—
Kerala	—	1	—	1	—	70	—	70	—	70	—	70	—	1	—	70
Karnataka	—	—	1	1	—	—	477	477	—		466	466	—	1	—	466
Maharashtra	47	214	23	284	9958	9018	581	19617	7277	7839	532	15648	—	284	—	15648
Orissa	7	10	20	37	3059	313	1489	4881	1808	333	952	3093	—	37	—	3093
Rajasthan	4	17	—	21	25075	1190	—	26265	2664	640	—	3304	3	18	2614	690
Tamil Nadu	24	128	1869	2021	6036	4083	3756	13875	4316	2979	2384	9679	—	2021	—	9679
West Bengal	4	1	—	5	1102	96	—	1198	646	55	—	701	—	5	—	701
Total	138	449	4391	4978	104768	17281	14673	136922	52626	13052	10748	76426	5	4973	2839	73587

S.W.—Salt works.

Pub.—Public.

Pri.—Private.

ANNEXURE 4.4(b)

DETAILS OF LICENSED SALT WORKS IN 1970 BY STATES, CATEGORIES AND SECTORS

State	No. of licensees				Licensed area (acres)				Area worked (acres)				No. of S.W.		Area worked (acres)	
	I	II	III	Total	I	II	III	Total	I	II	III	Total	Pub.	Pri.	Pub.	Pri.
Andhra Pradesh	21	71	1258	1350	6481	2221	3700	12402	4844	1819	3344	10007	—	1350	—	10007
Goa, Diu and Daman	2	4	2	8	977	258	796	2031	583	64	576	1223	—	8	—	1223
Gujarat	89	17	512	618	134602	1132	8788	144522	63265	577	4504	68346	2	616	856	67490
Himachal Pradesh	1	—	—	1	2	—	—	2	2	—	—	2	1	—	2	—
Kerala	—	1	—	1	—	70	—	70	—	70	—	70	—	1	—	70
Karnataka	—	—	1	1	—	—	432	432	—	—	432	432	—	1	—	432
Maharashtra	56	194	26	276	14355	8559	1551	24465	13031	8002	1513	22546	—	276	—	22546
Orissa	5	13	21	39	4904	612	1702	7218	2844	612	1062	4518	—	39	—	4518
Rajasthan	4	137	13	154	3508	5096	844	9448	3338	2665	280	6283	3	151	3008	3275
Tamil Nadu	26	125	1406	1557	13972	4226	3547	21745	10417	3707	3345	17469	—	1557	—	17469
West Bengal	3	3	—	6	22130	101	—	22231	1205	91	—	1296	—	6	—	1296
Total	207	565	3239	4011	200931	22275	21360	244566	99529	17607	15056	132192	6	4005	3866	128326

S.W.—Salt works.

Pub.—Public.

Pri.—Private.

ANNEXURE 4.4(c)

DETAILS OF LICENSED SALT WORKS IN 1971 BY STATES, CATEGORIES AND SECTORS

State	No. of licensees				Licensed area (acres)				Area worked (acres)				No. of S. W.		Area worked (acres)	
	I	II	III	Total	I	II	III	Total	I	II	III	Total	Pub.	Pri.	Pub.	Pri.
Andhra Pradesh	21	72	1262	1355	7613	2256	3741	13610	6045	1932	3437	11414	—	1355	—	11414
Goa, Diu & Daman . . .	3	3	3	9	1041	194	795	2030	471	194	569	1234	—	9	—	1234
Gujarat	95	16	510	621	138372	1030	8784	148186	63835	522	5230	69587	2	619	658	68929
Himachal Pradesh . . .	1	—	—	1	2	—	—	2	2	—	—	2	1	—	2	—
Kerala	—	1	—	1	—	70	—	70	—	70	—	70	—	1	—	70
Karnataka	—	—	1	1	—	—	432	432	—	—	432	432	—	1	—	432
Maharashtra	56	198	27	281	14355	8615	1551	24521	13081	7969	1513	22563	—	282	—	22563
Orissa	5	13	22	40	4904	612	1702	7218	2945	612	1096	4653	—	40	—	4653
Rajasthan	4	142	13	159	3318	5577	724	9619	3148	2576	275	5999	3	156	3148	2851
Tamil Nadu	29	129	1383	1541	14605	4489	4309	23403	10795	3876	4192	18863	—	1541	—	18863
West Bengal	3	6	—	9	2130	183	—	2313	1205	173	—	1378	—	9	—	1378
Total .	217	580	3221	4018	186340	23026	22038	231404	101527	17924	16744	136195	6	4012	3808	132387

S.W.—Salt works.
Pub.—Public.
Pri.—Private.

ANNEXURE 4.4(*d*)

DETAILS OF LICENSED SALT WORKS IN 1972 BY STATES, CATEGORIES AND SECTORS

State	No. of licensees				Licensed area (arces)				Area worked (acres)				No. of S. W.		Area worked (acres)	
	I	II	III	Total	I	II	III	Total	I	II	III	Total	Pub.	Pri.	Pub.	Pri.
Andhra Pradesh	23	84	1264	1371	8307	2691	3660	14658	7336	2206	3414	12956	—	1371	—	12956
Goa, Diu & Daman	3	3	3	9	1041	194	795	2030	471	150	569	1190	—	9	—	1190
Gujarat	100	15	513	628	140045	1030	9600	150675	61447	544	5000	66991	2	626	721	66270
Himachal Pradesh	1	—	—	1	2	—	—	2	2	—	—	2	1	—	2	—
Kerala	—	1	—	1	—	70	—	70	—	—	—	—	—	1	—	—
Karnataka	—	—	1	1	—	—	432	432	—	—	432	432	—	1	—	432
Maharashtra	56	195	27	278	14355	8614	1551	24520	12708	7997	1513	22218	—	278	—	22218
Orissa	5	14	24	43	4919	629	1726	7274	2945	629	1096	4670	—	43	—	4670
Rajasthan	4	161	14	179	3338	6117	834	10289	3168	2729	285	6182	3	176	2838	3344
Tamil Nadu	31	135	1368	1534	15002	4566	3048	22616	11034	3898	3067	17999	—	1534	—	17999
West Bengal	3	6	—	9	2130	206	—	2336	1215	183	—	1398	—	9	—	1398
Total	226	614	3214	4054	189139	24117	21646	234902	100326	18336	15376	134038	6	4048	3561	130477

S.W.—Salt works.

Pub.—Public.

Pri.—Private.

ANNEXURE 4.4(*e*)

DETAILS OF LICENSED SALT WORKS IN 1973 BY STATES, CATEGORIES AND SECTORS

State	No. of licensees				Licensed area (acres)				Area worked (acres)				No. of S.W.		Area worked (acres)	
	I	II	III	Total	I	II	III	Total	I	II	III	Total	Pub.	Pri.	Pub.	Pri.
Andhra Pradesh	24	84	1276	1384	8783	2663	3625	15071	5413	2022	3118	10553	—	1384	—	10553
Goa, Diu & Daman	3	3	3	9	1041	194	795	2030	827	135	571	1533	—	9	—	1533
Gujarat	111	16	516	643	141044	1067	10090	152201	69644	685	5946	76275	2	641	1558	74717
Himachal Pradesh	1	—	—	1	2	—	—	2	2	—	—	2	1	—	2	—
Karnataka	—	1	1	2	—	56	432	488	—	56	432	488	—	2	—	488
Maharashtra	60	199	24	283	114503	8509	1196	24208	11248	7938	1171	20357	—	283	—	20357
Orissa	5	15	24	44	4904	629	1726	7259	2954	629	1073	4656	—	44	—	4656
Pondicherry	2	—	—	2	643	—	—	643	110	—	—	110	—	2	—	110
Rajasthan	4	158	14	176	3247	5923	844	10014	3077	2815	290	6182	3	173	2747	3435
Tamil Nadu	28	142	1374	1544	15473	5029	2843	23345	10852	3936	2563	17351	—	1544	—	17351
West Bengal	3	6	—	9	2130	237	—	2367	1215	236	—	1451	—	9	—	1451
Total	241	624	3232	4097	191770	24307	21551	237628	105342	18452	15164	138958	6	4091	4307	134651

S.W.—Salt works.
Pub.—Public.
Pri.—Private.

ANNEXURE 4.4(f)

DETAILS OF LICENSED SALT WORKS IN 1974 BY STATES, CATEGORIES AND SECTORS

State	No. of licensees				Licensed area (acres)				Area worked (acres)				No. of S.W.		Area worked (acres)	
	I	II	III	Total	I	II	III	Total	I	II	III	Total	Pub.	Pri.	Pub.	Pri.
Andhra Pradesh	25	86	1251	1362	8928	2721	3851	15500	6416	2122	3139	11677	—	1362	—	11677
Goa, Diu and Daman	3	3	3	9	1041	369	795	2205	827	150	571	1548	2	7	812	736
Gujarat	117	16	533	666	132335	976	13889	147200	67919	568	6744	75231	2	664	1281	73950
Himachal Pradesh	1	—	—	1	2	—	—	2	2	—	—	2	1	—	2	—
Karnataka	—	1	1	2	—	56	433	489	—	56	432	488	—	2	—	488
Maharashtra	60	198	24	282	14253	8493	1193	23939	9303	7674	1171	18148	—	282	—	18148
Orissa	5	15	24	44	4940	629	1726	7295	2990	774	1073	4837	—	44	—	4837
Pondicherry	2	—	—	2	643	—	—	643	115	—	—	115	—	2	—	115
Rajasthan	4	147	13	164	81523	5613	814	87950	3190	2873	272	6335	3	161	2860	3475
Tamil Nadu	29	142	1370	1541	19416	4847	3352	27615	10683	3776	3170	17629	—	1541	—	17629
West Bengal	3	6	—	9	2129	237	—	2366	1215	214	—	1429	—	9	—	1429
Total	249	614	3219	4082	265210	23941	26053	315204	102660	18207	16572	137439	8	4074	4955	132484

S.W.—Salt works.

Pub.—Public.

Pri.—Private.

ANNEXURE 4.4(g)

DETAILS OF LICENSED SALT WORKS IN 1975 BY STATES, CATEGORIES AND SECTORS

State	No. of licensees				Licensed area (acres)				Area worked (acres)				No. of S.W.		Area worked (acres)	
	I	II	III	Total	I	II	III	Total	I	II	III	Total	Pub.	Pri.	Pub.	Pri.
Andhra Pradesh	28	90	1297	1415	10142	2831	4153	17226	7410	2249	3055	12714	—	1415	—	12714
Goa, Diu & Daman . . .	3	3	3	9	1041	194	795	2030	738	135	571	1444	2	7	749	695
Gujarat	121	15	60	196	166183	969	14004	181156	68401	596	6256	75253	2	194	1388	73865
Himachal Pradesh . . .	1	—	—	1	2	—	—	2	2	—	—	2	1	—	2	—
Karnataka	—	1		2	—	56	470	526	—	56	432	488	—	2	—	488
Maharashtra	63	198	25	286	16661	8466	1401	26528	11485	7732	1326	20543	—	286	—	20543
Orissa	5	15	23	43	4954	629	1724	7307	3004	774	1273	5051	1	42	600	4451
Pondicherry	2	—	—	2	643	—	—	643	552	—	—	552	—	2	—	552
Rajasthan	4	143	12	159	80708	5393	764	86865	3123	2856	262	6241	3	156	2793	3448
Tamil Nadu	32	139	335	1506	25930	4881	3745	34556	12665	3884	3289	19838	—	1506	—	19838
West Bengal	3	6	—	9	2129	237	—	2366	1230	224	—	1454	—	9	—	1454
Total .	262	610	2756	3628	308393	23756	27056	359205	108610	18506	16464	143580	9	3619	5532	138048

S.W.—Salt works.

Pub.—Public.

Pri.—Private.

ANNEXURE 4.4(*h*)

DETAILS OF LICENSED SALT WORKS IN 1976 BY STATES, CATEGORIES AND SECTORS

State	No. of licensees				Licensed area (acres)				Area worked (acres)				No. of S.W.		Area worked a(cres)	
	I	II	III	Total	I	II	III	Total	I	II	III	Total	Pub.	Pri.	Pub.	Pri.
Andhra Pradesh	26	90	1295	1411	9666	2947	3854	16467	6240	2017	3054	11311	—	1411	—	11311
Goa, Diu & Daman	3	3	3	9	1041	194	732	1967	764	135	571	1470	—	9	—	1470
Gujarat	111	16	63	190	139843	1097	14209	155149	63552	465	5811	69828	2	188	1304	68524
Himachal Pradesh	1	—	—	1	2	—	—	2	2	—	—	2	1	—	2	—
Karnataka	—	1	1	2	—	56	469	525	—	56	469	525	—	2	—	525
Maharashtra	64	198	25	287	16812	8466	1401	26679	11635	7739	1329	20703	—	287	—	20703
Orissa	5	15	23	43	4954	629	1876	7459	2987	629	1283	4899	1	42	600	4299
Pondicherry	2	—	—	2	643	—	—	643	557	—	—	557	—	2	—	557
Rajasthan	4	143	10	157	80708	5349	564	86621	1070	2795	217	4082	3	154	740	3342
Tamil Nadu	32	137	1339	1508	24699	4823	4160	33682	12921	3425	3470	19816	—	1508	—	19816
West Bengal	3	6	—	9	2154	251	—	2405	1230	227	—	1457	—	9	—	1457
Total	251	609	2759	3619	280522	23812	27265	331599	100958	17488	16204	134650	7	3612	2646	132004

S.W.—Salt works.
Pub.—Public.
Pri.—Private.

ANNEXURE 4.4(i)

DETAILS OF LICENSED SALT WORKS IN 1977 BY STATES, CATEGORIES AND SECTORS

State	No. of licensees				Licensed area (acres)				Area worked (acres)				No. of S.W.		Area worked (acres)	
	I	II	III	Total	I	II	III	Total	I	II	III	Total	Pub.	Pri.	Pub.	Pri.
Andhra Pradesh . . .	25	88	1287	1400	12594	2900	3872	19366	5890	2107	3316	11313	1	1399	30	11283
Goa, Diu & Daman . . .	2	4	2	8	977	258	733	1968	749	64	571	1384	—	8	—	1384
Gujarat	114	16	69	199	159075	927	15532	175534	65191	544	6099	71834	2	197	1301	70533
Himachal Pradesh . . .	1	—	—	1	2	—	—	2	2	—	—	2	1	—	2	—
Karnataka	1	1	1	3	1849	56	469	2374	—	56	469	525	—	3	—	525
Maharashtra	64	200	24	288	16812	8539	1346	26697	11815	7716	1274	20805	1	287	N.A.	20805
Orissa	5	15	24	44	4954	629	1876	7459	2987	777	1230	4994	1	43	600	4394
Pondicherry	2	—	—	2	643	—	—	643	557	—	—	557	—	2	—	557
Rajasthan	4	141	10	155	80714	5133	534	86381	2147	2505	202	4854	3	152	2147	2707
Tamil Nadu	30	137	1332	1499	24706	4430	3325	32461	14415	3322	2442	20179	2	1497	3190	16989
West Bengal	3	7	—	10	2154	327	—	2481	1754	227	—	1981	—	10	—	1981
Total .	251	609	2749	3609	304480	23199	27687	355366	105507	17318	15603	138428	11	3598	7270	131158

S.W.—Salt works.

Pub.—Public.

Pri.—Private.

ANNEXURE 4.4(j)

DETAILS OF LICENSED SALT WORKS IN 1978 BY STATES, CATEGORIES AND SECTORS

State	No. of licensees				Licensed area (acres)				Area worked (acres)				No. of S.W.		Area worked (acres)	
	I	II	III	Total	I	II	III	Total	I	II	III	Total	Pub.	Pri.	Pub.	Pri.
Andhra Pradesh	26	92	1269	1387	12905	2927	1139	19971	6751	2528	3923	13202	1	1386	730	12472
Goa, Diu & Daman	2	4	2	8	977	257	732	1966	924	198	571	1693	—	8	—	1693
Gujarat	135	14	88	237	162375	927	16628	179930	81769	571	8335	90675	2	235	1420	89255
Himachal Pradesh	1	—	—	1	2	—	—	2	2	—	—	2	1	—	2	—
Karnataka	2	1	1	4	1961	56	469	2486	1849	56	469	2374	—	4	—	2374
Maharashtra	66	200	26	292	17290	8539	1588	27417	15776	7694	1507	24977	1	291	1167	23810
Orissa	5	15	24	44	4954	631	1876	7461	3363	779	1401	5543	1	43	976	4567
Pondicherry	2	—	—	2	643	—	—	643	33	—	—	33	—	2	—	33
Rajasthan	4	150	10	164	80714	5371	534	86619	1501	3444	319	5264	3	161	1172	4092
Tamil Nadu	32	142	1330	1504	26046	5076	3790	34912	17998	3928	3126	25052	2	1502	4071	20981
West Bengal	3	7	—	10	2154	327	—	2481	1754	325	—	2079	—	10	—	2079
Total	278	625	2750	3653	310021	24111	29756	363888	131720	19523	19651	170894	11	3642	9538	161356

S.W.—Salt w

Pub.—Public.

Pri.—Private

ANNEXURE 4.5(*a*)

PRODUCTION OF SALT IN 1960 BY STATES, CATEGORIES AND SECTORS

(Figurees in '000 tonnes)

State	Category				Total	Sector	
	I	II	III	IV		Public	Private
Andhra Pradesh	71	25	125	32	253	—	253
Gujarat	1284	38	235	52	1609	151	1458
Himachal Pradesh	4	—	—	—	4	4	—
Kerala	—	1	—	—	1	—	1
Karnataka	—	—	3	1	4	—	4
Maharashtra	217	209	13	—	439	—	439
Orissa	24	8	6	1	39	—	39
Rajasthan	280	24	—	3	307	280	27
Tamil Nadu	189	161	225	193	768	—	768
West Bengal	8	1	—	2	11	—	11
Total	2077	467	607	284	3435	435	3000

सत्यमेव जयते

ANNEXURE 4.5(*b*)

PRODUCTION OF SALT IN 1970 BY STATES, CATEGORIES AND SECTORS

(Figures in '000 tonnes)

State	Category				Total	Sector	
	I	II	III	IV		Public	Private
Andhra Pradesh	56.6	26.0	91.7	23.2	197.5	—	197.5
Goa, Diu & Daman	6.2	1.1	3.4	0.3	11.0	—	11.0
Gujarat	2590.0	98.8	390.4	263.5	3342.7	111.3	3231.4
Himachal Pradesh	4.4	—	—	—	4.4	4.4	—
Kerala	—	0.2	—	—	0.2	—	0.2
Karnataka	—	—	8.6	0.6	9.2	—	9.2
Maharashtra	216.1	181.2	29.5	1.6	428.4	—	428.4
Orissa	23.3	16.4	17.5	—	57.2	—	57.2
Rajasthan	306.3	138.3	6.7	34.2	485.5	296.8	188.7
Tamil Nadu	275.6	164.4	191.9	408.3	1040.2	—	1040.2
West Bengal	9.8	0.9	—	1.2	11.9	—	11.9
Total	3488.3	627.3	739.7	732.9	5588.2	412.5	5175.7

ANNEXURE 4.5(*c*)

PRODUCTION OF SALT IN 1971 BY STATES, CATEGORIES AND SECTORS

(Figures in '000 tonnes)

State	Category				Total	Sector	
	I	II	III	IV		Public	Private
Andhra Pradesh	55.6	40.2	135.2	32.1	263.1	—	263.1
Goa, Diu & Daman	5.0	0.7	3.6	0.2	9.5	—	9.5
Gujarat	2217.4	76.0	341.1	378.1	3012.6	69.5	2943.1
Himachal Pradesh	4.2	—	—	—	4.2	4.2	—
Kerala	—	0.7	—	—	0.7	—	0.7
Karnataka	—	—	12.2	1.5	13.7	—	13.7
Maharashtra	237.7	197.5	33.3	2.2	470.7	—	470.7
Orissa	11.8	7.3	6.3	—	25.4	—	25.4
Rajasthan	297.9	176.2	14.2	49.2	537.5	284.4	253.1
Tamil Nadu	373.5	201.5	221.3	289.6	1085.9	—	1085.9
West Bengal	2.6	0.1	—	0.1	2.8	—	2.8
Tota	3205.7	700.2	767.2	753.0	5426.1	358.1	5068.0

ANNEXURE 4.5(*d*)

PRODUCTION OF SALT IN 1972 BY STATES, CATEGORIES AND SECTORS

(Figures in '000 tonnes)

State	Category				Total	Sector	
	I	II	III	IV		Public	Private
Andhra Pradesh	119.2	62.2	181.9	42.7	406.0	—	406.0
Goa, Diu & Daman	7.3	1.1	4.9	0.4	13.7	—	13.7
Gujarat	2824.0	80.0	442.4	423.1	3769.5	73.7	3695.8
Himachal Pradesh	4.7	—	—	—	4.7	4.7	—
Kerala	—	—	—	—	—	—	—
Karnataka	—	1.5	12.7	0.9	15.1	—	15.1
Maharashtra	300.1	235.6	43.5	2.3	581.5	—	581.5
Orissa	45.1	17.5	24.9	—	387.5	—	87.5
Pondicherry	0.7	—	—	0.1	0.8	—	0.8
Rajasthan	300.0	172.1	10.7	36.0	518.8	292.0	226.8
Tamil Nadu	302.6	189.4	217.7	395.4	1105.1	—	1105.1
West Bengal	9.6	2.6	—	2.2	14.4	—	14.4
Total	3913.3	762.0	938.7	903.1	6517.1	370.4	6146.7

ANNEXURE 4.5(*e*)

PRODUCTION OF SALT IN 1973 BY STATES, CATEGORIES AND SECTORS

(Figures in '000 tonnes)

State	Category				Total	Sector	
	I	II	III	IV		Public	Private
Andhra Pradesh	93.6	42.0	115.8	38.3	289.7	—	289.7
Goa, Diu & Daman	6.5	0.88	4.2	0.4	11.9	—	11.9
Gujarat	3263.4	114.5	562.3	391.8	4332.0	72.6	4259.4
Himachal Pradesh	3.7	—	—	—	3.7	3.7	—
Karnataka	—	2.4	16.7	1.2	20.3	—	20.3
Maharashtra	298.6	207.7	32.5	2.1	540.9	—	540.9
Orissa	29.6	11.2	15.8	—	56.6	—	56.6
Pondicherry	1.5	—	—	0.1	1.6	—	1.6
Rajasthan	319.0	167.4	11.0	36.9	534.3	304.0	230.3
Tamil Nadu	306.3	193.4	210.0	348.9	1058.6	—	1058.6
West Bengal	8.9	1.1	—	0.6	10.6	—	10.6
Total	4331.1	740.5	968.3	820.3	6860.2	380.3	6479.9

सत्यमेव जयते

ANNEXURE 4.5(*f*)

RODUCTION OF SALT IN 1974 BY STATES, CATEGORIES AND SECTORS

(Figures in '000 tonnes)

State	Category				Total	Sector	
	I	II	III	IV		Public	Private
Andhra Pradesh	82.4	51.3	140.6	46.7	321.0	—	321.0
Goa, Diu & Daman	7.9	0.5	2.7	0.7	11.8	—	11.8
Gujarat	2881.8	69.6	415.2	225.1	3591.7	73.7	3518.0
Himachal Pradesh	5.0	—	—	—	5.0	5.0	—
Karnataka	—	2.4	10.5	1.3	14.2	—	14.2
Maharashtra	198.6	157.2	24.8	1.8	382.4	—	382.4
Orissa	28.5	19.5	25.5	—	73.5	—	73.5
Pondicherry	0.5	—	—	0.1	0.6	—	0.6
Rajasthan	287.8	175.2	9.4	45.1	517.5	274.6	242.9
Tamil Nadu	273.9	183.8	187.3	340.0	985.0	—	985.0
West Bengal	7.2	1.4	—	1.6	10.2	—	10.2
Total	3773.6	660.9	816.0	662.4	5912.9	353.3	5559.6

ANNEXURE 4.5(g)

PRODUCTION OF SALT IN 1975 BY STATES, CATEGORIES AND SECTORS

(Figures in '000 tonnes)

State	Category I	Category II	Category III	Category IV	Total	Sector Public	Sector Private
Andhra Pradesh	94.7	48.3	121.4	45.3	309.7	—	309.7
Goa, Diu & Daman	6.6	1.4	4.5	0.3	12.8	—	12.8
Gujarat	2337.1	54.4	545.7	357.7	3294.9	70.9	3224.0
Himachal Pradesh	3.3	—	—	—	3.3	3.3	—
Karnataka	—	2.6	12.3	1.4	16.3	—	16.3
Maharashtra	217.5	160.9	27.4	2.4	408.2	—	408.2
Orissa	24.3	5.7	16.0	—	46.0	2.4	43.6
Ponchiherry	0.6	—	—	—	0.6	—	0.6
Rajasthan	205.1	104.7	5.7	87.4	402.9	205.5	197.4
Tamil Nadu	342.6	191.8	197.6	601.1	1333.1	—	1333.1
West Bengal	9.1	2.2	—	3.8	15.1	—	15.1
Total	3240.9	572.0	930.6	1099.4	5842.9	282.1	5560.8

सत्यमेव जयते

ANNEXURE 4.5(h)

PRODUCTION OF SALT IN 1976 BY STATES, CATEGORIES AND SECTORS

(Figures in 000 tonnes)

State	Category I	Category II	Category III	Category IV	Total	Sector Public	Sector Private
Andhra Pradesh	103.8	49.5	108.1	46.1	307.5	—	307.5
Goa, Diu and Daman	2.5	(—) 0.3	1.3	0.2	3.7	—	3.7
Gujarat	1043.3	11.2	330.6	100.8	1485.9	70.0	1415.9
Himachal Pradesh	4.5	—	—	—	4.5	4.5	—
Karnataka	—	2.7	16.0	1.5	20.2	—	20.2
Maharashtra	243.1	175.3	28.8	2.0	449.2	—	449.2
Orissa	44.6	20.6	19.2	—	84.4	7.5	76.9
Pondicherry	1.1	—	—	—	1.1	—	1.1
Rajasthan	(—) 11.9	125.4	7.5	43.5	164.5	(—)11.9	176.4
Tamil Nadu	450.8	225.9	207.4	655.9	1540.0	—	1540.0
West Bengal	12.3	1.5	—	1.6	15.4	—	15.4
Total	1894.1	611.8	718.9	851.6	4076.4	70.1	4006.3

ANNEXURE 4.5(*i*)

PRODUCTION OF SALT IN 1977 BY STATES, CATEGORIES AND SECTORS

(Figures in '000 tonnes)

State	Category				Total	Sector	
	I	II	III	IV		Public	Private
Andhra Pradesh	68.5	52.3	112.7	47.2	280.7	—	280.7
Goa, Diu and Daman	5.0	0.6	2.5	—	8.1	—	8.1
Gujarat	2302.6	30.5	396.0	197.2	2926.3	75.7	2850.6
Himachal Pradesh	3.9	—	—	—	3.9	3.9	—
Karnataka	—	2.3	5.6	1.3	9.2	—	9.2
Maharashtra	283.7	235.3	35.3	2.1	556.4	1.5	554.9
Orissa	9.9	13.5	14.0	—	37.4	1.0	36.4
Pondicherry	0.1	—	—	—	0.1	—	0.1
Rajasthan	95.4	180.1	11.0	53.3	339.8	96.0	243.8
Tamil Nadu	288.6	166.9	178.9	522.0	1156.4	9.2	1147.2
West Bengal	9.1	0.7	—	0.4	10.2	—	10.2
Total	3066.8	682.2	756.0	823.5	5328.5	187.3	5141.2

ANNEXURE 4.5(*j*)

PRODUCTION OF SALT, IN 1978 BY STATES, CATEGORIES AND SECTORS

(Figures in '000 tonnes)

State	Category				Total	Sector	
	I	II	III	IV		Public	Private
Andhra Pradesh	90.1	67.6	134.4	58.7	350.8	2.7	348.1
Goa, Diu and Daman	6.8	1.8	4.8	0.3	13.7	—	13.7
Gujarat	2363.9	78.8	765.9	346.9	3555.5	64.2	3491.3
Himachal Pradesh	4.3	—	—	—	4.3	4.3	—
Karnataka	—	2.4	9.3	0.9	12.6	—	12.6
Maharashtra	245.6	188.5	30.0	1.9	466.0	1.7	464.3
Orissa	39.1	10.2	20.0	—	69.3	4.3	65.0
Pondicherry	0.4	—	—	—	0.4	—	0.4
Rajasthan	191.6	218.5	10.4	75.3	496.3	191.7	304.6
Tamil Nadu	442.6	255.4	252.2	769.4	1719.6	14.8	1704.8
West Bengal	4.1	0.7	—	0.2	5.0	—	5.0
Total	3388.5	823.9	1227.0	1254.1	6693.5	283.7	6409.8

ANNEXURE 4.6

TOTAL PRODUCTION OF SALT DURING 1960 AND 1970 TO 1978 BY CATEGORIES

(Figures in '000 tonnes)

Year	Category				Total
	I	II	III	IV	
1960	2077.5 (60.47)	467.0 (13.60)	607.0 (17.67)	284.0 (8.26)	3435.5
1970	3488.3 (62.42)	627.3 (11.23)	739.7 (13.24)	732.9 (13.11)	5588.2
1971	3205.7 (59.08)	700.2 (12.90)	767.2 (14.14)	753.0 (13.88)	5426.1
1972	3913.3 (60.05)	762.0 (11.69)	938.7 (14.40)	903.1 (13.86)	6517.1
1973	4331.1 (63.14)	740.5 (10.79)	968.3 (14.11)	820.3 (11.96)	6860.2
1974	3773.6 (63.82)	660.9 (11.18)	816.0 (13.80)	662.4 (11.20)	5912.9
1975	3240.9 (55.47)	572.0 (9.79)	930.6 (15.93)	1099.4 (18.81)	5842.9
1976	1894.1 (46.47)	611.8 (15.00)	718.9 (17.64)	851.6 (20.89)	4076.4
1977	3066.8 (57.55)	682.2 (12.80)	756.0 (14.19)	823.5 (15.46)	5328.5
1978	3388.5 (50.62)	823.9 (12.31)	1227.0 (18.33)	1254.1 (18.74)	6693.5

NOTE : Figures in paranthesis indicate the percentage of the total production for each year.

ANNEXURE 4.7

PRODUCTION OF SALT IN WORKS OF 10 ACRES OR LESS IN THE LICENSED AND NON-LICENSED SECTORS DURING 1960 AND 1970 TO 1978

(Figures in '000 tonnes)

Year	Licensed Sector	Non-licensed Sector	Total
1960	607.0	284.0	891.0
1970	739.7	732.9	1472.6
1971	767.2	753.0	1520.2
1972	938.7	903.1	1841.8
1973	968.3	820.3	1788.6
1974	816.0	662.4	1478.4
1975	930.6	1099.4	2030.0
1976	718.9	851.6	1570.5
1977	756.0	823.5	1579.5
1978	1227.0	1254.1	2481.1

NOTE : Licensed sector includes cooperative societies.

ANNEXURE 4.8

AVERAGE YIELD OF SALT DURING 1976-1978 AND EXPECTED YIELD (SECTORIALLY)

	Place	Area under cultivation (acres)			Production of salt (tonnes)			Average yield (tonnes per acre)			Expected yield (tonnes per acre)
		1976	1977	1978	1976	1977	1978	1976	1977	1978	
	ANDHRA PRADESH										
I.	Pundi, Bhavanapadu, Mulapeta & Naupada	3954	3975	4033	80108	71132	74814	20	18	19	20
	Calingapatam, Konada and Bimilipatnam	537	573	713	10913	7906	10773	20	13	15	15
	Karasa, Balacheruvu, Vedacheepurapalli Pudimadaka, Chandanada, Butchirajupeta and Vakapadu .	2880	2530	2727	59471	23167	40905	21	9	15	15
	Jagannaickpur and Guruzanapalli .	925	935	889	16037	19565	20151	17	21	23	20
	Manginapudi	48	48	52	999	778	1132	21	16	22	20
	Chinnaganjam & Padarthy . .	926	989	949	30923	34662	41719	33	35	44	35
	Pakala, Iskapalli, Krishnapatam & Tada	1496	1768	2148	46596	72558	81842	31	41	38	35
	GUJARAT										
II.	Jamnagar	53095	53825	58817	1528033	2324746	2015777	29	43	34	80
	Diu	748	1383	748	55000	10752	7350	7	8	10	10
	Dhrangadhra	6815	7052	9088	372421	476207	753772	55	68	83	110
	Kharaghoda	1109	1109	1228	71562	82227	120624	65	74	98	80
	Kharaghoda Private . . .	2507	2715	4331	286624	384457	483087	114	141	112	100
	KARNATAKA										
III.	Sanikatta	525	525	526	19799	11040	10216	38	21	19	20
	MAHARASHTRA										
IV.	Trombay, Bhandup, Belapur & Wadala	5297	5095	4639	95938	108031	88439	18	21	19	20
	Bassein, Rai, Maroli and Palghar .	13239	13300	14307	206483	278789	207662	16	21	15	20
	Sewa, Karanja & Pen . . .	4357	4396	4296	94954	115890	76454	22	26	18	25
	ORISSA										
V.	Sumadi & Surla Ganjam. . .	3373	3372	3749	49765	14486	47400	15	4	13	15
		896	896	1000	24899	18040	14749	28	20	15	20

				RAJASTHAN							
VI.	Sambhar	120	under water	552	..	800	8500	..	..	15	..
	Pachbadra	231	231	231	48900	48900	75400	11	212	326	..
	Didwana	389	389	389	18800	46300	107800	48	119	277	..
	Phalodi	1218	1226	2061	85855	119689	148233	70	98	72	75
	Sargot & Mithri	347	355	355	3413	22548	12595	10	64	35	60
	Pokaran	255	258	271	8196	14617	18778	32	57	69	60
	Sujangarh	604	650	636	36294	37454	40882	60	58	64	60
				TAMIL NADU							
VII.	Voyalur, Thillai, Attiput & Vallur	3358	2094	2862	53597	65807	67699	16	31	24	25
	Covelong, Cheyyur and Churampet	2208	2854	4277	35661	35795	45744	16	13	11	20
	Markanam, Vedaranyam and Adiramapatnam	8250	7090	9065	201100	148030	269926	24	21	30	25
	Veppalodai, Arasady and Tuticorin	3729	3656	3856	476212	309336	149423	128	85	117	100
	Kayalpatnam	1551	1539	1549	100565	63639	64706	65	41	42	50
	Kanyakumari area	588	586	795	32989	20890	32521	56	35	41	40
				WEST BENGAL							
VIII.	Contai	1230	1754	1754	13322	10954	4538	11	6	3	10

ANNEXURE 4.9

PRODUCTION. AVERAGE AND MEMBERSHIP OF LICENSED COOPERATIVE SOCIETIES IN DIFFERENT STATES DURING 1976, 1977 and 1978

State	Licensed area (Acres)	Area under Production (Acres)	Total No. of Members	Production (tonnes) 1976	1977	1978
Maharashtra	1901	1631	2666	32051	37578	28016
Karnataka	469	469	253	17044	8455	7783
Goa, Daman & Diu . . .	795	601	649	3875	2532	5261
Gujarat	17044	5740	6451	446885	484105	763415
Andhra Pradesh	1560	1105	1884	31831	28650	24999
Tamil Nadu	1515	1088	3045	51375	36511	41827
Orissa	1818	1330	1747	17634	12540	19983
Rajasthan	564	310	157	7485	11000	10282
Total .	*25666	12274	16852	608180	621371	901566

ANNEXURE 4.1

DETAILS OF IODISATION PLANTS-SOURCE, CAPACITY AND QUANTITY OF IODISED SALT PRODUCED DURING 1969 TO 1978

(figures in tonnes)

Source	Annual Capacity	1969	1970	1971	1972	1973
Sambhar	185400	42259	36920	33982	37781	52982
Kharaghoda	115200	10832	21715	30134	34326	27708
Calcutta	81000	2833	1156	8245	9811	24610
Total . .	381600	55924	59791	72361	81918	105300

Source	Annual Capacity	1974	1975	1976	1977	1978
Sambhar	185400	89426	71507	51033	65645	55000
Kharaghoda	115200	60760	70961	76890	99541	80282
Calcutta	81000	22630	30167	34145	31401	31776
Total . .	381600	172816	172635	162068	196587	167058

Note : Annual capacity is on two shift basis.

ANNEXURE 5.1

MOVEMENT OF SALT FOR EDIBLE AND INDUSTRIAL PURPOSE BY DIFFERENT MOBES OF TRANSPORT DURING THE YEARS FROM 1976 TO 1979

(figures in '000 tonnes)

Purpose	Mode of transport	1976	1977	1978	1979
Human consumption	Rail	2193.0	2392.2	2255.2	2188.6
	Road	780.9	1063.2	1275.6	1712.2
	River	357.5	257.7	373.1	303.1
	Total	3331.4	3713.1	3903.9	4203.9
Industrial consumption	Rail	473.4	419.5	416.4	430.9
	Road	1144.9	1316.1	1381.0	1539.1
	River	172.2	197.5	243.0	256.3
	Total	1790.5	1933.1	2040.4	2226.3
Total	Rail	2666.4	2811.7	2671.6	2619.5
	Road	1925.8	2379.3	2656.6	3251.3
	River	529.7	455.2	616.2	559.4
	GRAND TOTAL	5121.9	5646.2	5944.3	6430.2

सत्यमेव जयते

ANNEXURE 5.2

PARTICULARS OF SALT GOLAHS AT CALCUTTA AND SALT STORED THEREIN

	No. of Golahs	Capacity in '000 tonnes
1. Full capacity	206	159.0
2. Capacity leased out to others :		
(a) West Bengal State Warehousing Corporation	17	12.4
(b) Central Excise	1	0.5
(c) C.P.W.D.	16	11.8
(d) I.D. Plants	4	4.9
Total	38	29.6
3. Balance capacity available for storage of salt	168	129.4

4. Capacity utilised :

(figures in '000 tonnes)

Year	Opening balance	Receipts	Issues	Closing stock
1969	46.7	38.4	55.2	29.9
1970	29.9	24.5	41.1	13.3
1971	13.3	61.4	38.7	36.0
1972	36.0	61.5	32.8	64.7
1973	64.7	61.4	72.3	53.8
1974	53.8	45.6	66.9	32.5
1975	32.5	58.3	45.0	45.8
1976	45.8	52.8	49.6	49.0
1977	49.0	33.9	61.3	21.6
1978	21.6	65.6	65.2	22.0
1979	22.0	54.8	54.4	22.4

ANNEXURE 6.1(a)

DETAILS OF COST OF PRODUCTION (EX-WORKS) OF UN-BAGGED CRYSTAL SALT IN GUJARAT

Details	Jamnagar		Bhavnagar		Mithapur	Dhrangadhra				Kharaghoda			
										Hindustan Salt			
	Salt & Allied Ind. Ltd.	Sikka Salt	Bhav-nagar Salt	G.S.M. C.R.I.	Tata Chem. Ltd.	M.C. Chinai	N.R. Jaiswal	Panna Salt	Jai-Baj-rang Coop.	Baragara	Kurk-utch	Super Salt	Khara-ghoda MUSM Co-op. Soc.
Category of unit	I	I	I	I	I	I	II	I	Co-op.	I		I	Co-op.
Total area (acres)	2364	610	5626	275		125	50	102	105	9218		150	300
Dev. area (acres)	2329	500	3100	200		24	46			1228		82	160
Production (tonnes)	82563	5313	64631	7130	293911	2908	6700	2000	8500	106962	13698	8358	32498
Yield per Dev. acre (tonnes)	35.45	10.63	20.84	35.65									8.3
Accounting year ending	30-9-1978	31-8-1978	31-7-1978	30-9-1978	30-4-1979	1978	1978	1978	1978	30-9-1978		30-9-1978	30-9-1978
Cost of production (Rupees/per tonne)													
Power & fuel	2.39	3.23	2.14	2.49							3.38		
Repairs & maintenance	6.52	13.88	9.56	5.69	6.13					0.46	11.38		
Labour, scrapping, heaping washing, carriage & others.	6.57	10.06	7.98	9.96	3.06	18.25	18.00	17.50	17.50	18.28	18.76	17.65	17.50
Royalty/Asstt. fee other levies	1.00	1.88	0.37	1.00	1.00	1.00	1.00	1.00	..	..	..	1.00	
Ground rent	0.19	0.19	0.01	0.26		0.29	0.05	0.17	0.07	- 0.73	0.71	0.13	0.06
Depreciation	0.71	5.06	0.52	1.19	5.94					0.47	2.87		
Overheads	3.63	7.64	5.69	8.38	16.47	27.1	3.95	2.00	1.93	11.04	11.72	3.87	1.85
Adj. for work in process—Total	21.01	41.94	26.27	28.97	32.60	22.25	23.00	20.67	19.50	30.98	48.82	22.65	19.41
Less credit for gypsum etc.	1.39		Not stabilised	..	2.00					0.48	0.48		
Net cost of production	19.62	41.94	26.27	28.97	30.60	22.25	23.00	20.67	19.50	30.50	48.34	22.65	19.41

ANNEXURE 6.1(b)

DETAILS OF PRODUCTION, YIELD COST OF PRODUCTION AND FAIR SELLING PRICE--EX-WORKS (CRYSTAL UN-BAGGED) SALT IN GUJARAT

Details	Jamnagar	Bhavnagar		Mithapur	Dhrangadhra						
	Salt & Allied Ind. Ltd.	Bhavnagar Salt	C.S.M. C.R.I.	Tata Chemicals Limited	M.C. Chinai	Panna Salt	Super Salt	H.S.L. Kharaghoda	NR. Jaiswal	Jai Bajrang	Kharaghoda M.U.S.M.
Season	9 mon.	9 mon.	9 mon.	9 months.	9 mon.	9 mon.	9 mon.	9 mon.	9 mon.	9 mon.	9 mon.
Category of unit	I	I	I	I	I	I	I	I	II	Co-op.	Co-op
Source of brine	Sea brine	Sea brine	Sea brine	Sea brine	Pit brine	Pit brine	Pit brine	Pit brine	Pit brine	Pit brine	Pit brine
Production (tonnes)	82563	64631	7130	293911	2988	2000	8358	106962	6700	8508	32498
Total area (acres)	2329	5626	275	..	125	102	158	9218	50	105	300
Dev. Area (acres)	2329	3100	200	..	24	..	82	1228	46	..	160
Yield per Dev. area (tonnes)	35.45	20.85	35.65		121.17	19.61	191.93	87.10	145.65	80.95	203.11
Year of account (ending)	30-9-78	31-7-78	30-9-78	30-4-79	1978	..	30-9-78	30-9-78	1978	1978	30-6-78
Cost of Prodn.	19.62	26.27	28.97	30.60	22.25	20.67	22.65	30.50	23.00	19.50	19.41
Gross Return (int. & post tax return @ 14% of net work)	3.93	3.56	8.15	Captive use.	3.18	3.96	4.23	6.84	4.28	2.79	2.76
Fair selling price (ex-works)	23.55	29.83	37.12		25.43	24.63	26.88	37.34	27.28	22.29	22.17
Cess	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	1.75	..	..
Total ex-works fair selling price (including cess)	27.05	33.33	40.62	.	28.93	28.13	30.38	40.84	29.03	22.29	22.17
Average sales realisation	29.55	39.86	71.45	..	30.00	..	40.24	39.39	31.00	20.00	21.00

	Weighted average fair selling price	Weighted average sales realisation
Category-I	34.43	37.28
Category-II	29.03	31.00
Category-III		..
Co-operatives	22.19	20.79
Region	32.75	35.04

ANNEXURE 6.2(a)

DETAILS OF COST PRODUCTION (EX-WORKS) OF UN-BAGGED CRYSTAL SALT IN TAMIL NADU

Details	Covelong		Vedaranyam				Tuticorin								
	Marti Crystal salts Ltd.	Karunakaran	Mettur Chem. Ind. Corpn.	A.S. Thayumanaswamy	V. Nabarajan	Vaidyanatha Desikar	K. Perembalam Pillai	Dhrangadhra Chem. works	B. Motha and others	N.S. Eswara Ammal	KMP V. Muthiah Chettiar	A.B. Kathija bibi	P. Muthu karuppiah	Arumuganori Coop. Soc.	Tamil Nadu Salt Corpn.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Category of unit	1	III	I	II	II	III	III	I	I	II	III	III	III	Coop.	I
Total area (acres)	3400	2.38	3500	14.73	15.47	2.26	5.05	1979.34	1051	41.04	3.49	0.63	1.79	175.25	5617.66
Developed area (acres)	1350	2.38	3500	14.73	15.47	2.26	5.05	1979.34	1051	41.04	3.49	0.63	1.79	156.25	2285
Production (tonnes)	8939.4	114	60250	2045	2250	361	970	44583	63389	11944.5	No Prodn.	259	445.7	13170	6100
Yield per Dev. acre (T)	6.62	47.9	17.21	138.81	145.40	159.51	191.95	22.52	60.31	291.05	..	407.8	249.0	84.28	2.67
Accounting year ending	30-9-1978	1978	31-3-1978	1978	1978	1978	1978	31-3-1978	18-1-78	1978	1978	1978	1978	1977	1978
Cost of production (Rs./per tonne)															
Power & fuel	7.65	6.58	4.34	1.20	1.50	1.50	1.30	3.73	4.75	4.33	..	6.67	3.05	3.19	13,09
Repairs & maintenance	12.54	19.74	..	10.50	10.00	10.00	10.08	10.27	12.52	2.55	..	5.33	2.85	..	34.97
Labour, scrapping, heaping, washing carriages & others	33.38	30.00	9.39	5.80	5.00	5.00	5.07	22.05	6.07	10.49	..	15.80	13.57	46.50	34.67
Royalty/assistance	Not fixed		..	1.05	0.88	0.80	0.75	..	1.00	0.39	..	1.00	1.00	1.49	6.30
Other levies	..	0.35	0.38	0.53	0.53	0.53	0.53	..	..	..	..	..	..	..	..
Ground rent	Not fixed	..	..	0.02	0.02										
Depreciation	43.13	..	0.39	..	..	..	..	1.05	0.58	0.52	..	..	..	1.57	17.93
Overhead adj for work in process	32.94	..	7.12	..	..	..	..	6.00	1.41	2.11	..	..	..	3.05	51.96
Total	129.64	56.67	21.62	19.10	17.93	17.83	17.93	39.16	26.33	20.39	..	28.30	20.47	55.80	159.00
Less credited for gypsum etc.		..	0.12	..	..	..	..	3.40	3.07	..	..	..	..	..	..
Net cost of production	129.64	56.67	21.50	19.10	17.93	17.83	17.93	35.76	23.26	20.39	..	28.80	20.47	55.80	159.00

ANNEXURE 6.2(b)

DETAILS OF PRODUCTION- YIELD, COST OF PRODUCTION AND FAIR SELLING PRICE-EX-WORKS-(CRYSTAL UN-BAGGED) SALT—TAMIL NADU

Details	Covelong		Vedaranyam			Tuticorin					
	Karunakaran	Mettur Chem. & Ind. Corpn.	A.S. Thayumanasamy	V. Natharajan	Vaidyanatha Desikar	K. Perambalam Pillai	Dhrangadhra Chem. Works	R. Moora and others	M.S. Eswara Ammal	P. Muthukaruppiah	Arumaganeri Co-op.
Season	8 Mon.	9 Mon.	9 Mon.	9 Mon.	9 Mon.	9 Mon.	10 Mon.	10 Mon.	10 Mon.	10 Mon.	10 Mon.
Catogory of unit	III		II	II	III	III	I	I	II	III	Co-op.
Source of brine	Sea/pit brine	Sea brine	Bore well	Bore well	Bore well	Bore well	Sea/bore brine	Sea/bore	Bore well	Bore well	Pit brine
Production (tonnes)	114	60250	2045	2250	361	970	44583	63389	11944.5	445.7	13.170
Total area (acres)	2.38	3500	14.732	15.4683	2.2632	5.0535	1079.34	1051	41.04	1.79	175.25
Developed area (acres)	2.38	3500	14.732	15.4683	2.2632	5.0535	1079.34	1051	41.04	1.79	175.25
Yield per Dev. acre (tonne)	47.9	17.21	138.81	145.46	159.51	191.95	22.52	60.31	291.05	249.0	84.22
Year of account ending	31-12-1978	31-3-1978	31-12-1978	31-12-1978	31-12-1978	31-12-1978	31-3-1978	18-1-1978	31-12-1978	31-12-1978	31-12-1978
Cost of producton (rupees/per tonne)	556.67	21.50	19.100	17.92	17.85	17.93	35.76	23.26	20.30	20.47	55.80
Gross return (Ind. & P.T. return at 14% & NW)	9.62	5.15	5.28	3.30	3.02	3.04	7.19	6.75	5.03	4.04	20.59
Fair selling price (ex-works)	66.29	26.65	24.38	21.22	20.85	20.97	42.95	30.01	25.33	24.51	76.39
Cess		3.50	1.75	1.75			3.50	3.50	1.75		
Total ex-works fair selling price (including cess)	66.29	30.15	26.13	22.97	20.85	20.97	46.45	33.51	27.08	24.51	76.39
Average sales realisation	80.00	.. (Capative)	22.50 (App.)	22.50 (App.)	20.00 (App.)	20.00 (App.)	.. (Captive)	59.81	40.82	25.00 (App.)	100.00

	Weighted Average Ex-works fair selling price			Weighted Qverage Sales realisatur		
	Covelong	Vedaranayam	Tuticorin	Covelong	Vedaranyam	Tuticorin
Category-I	..	(Captive)	33.51*	..	(Captive)	59.81*
Category-II	..	23.64	27.08	..	22.50 (App.)	40.82
Category-III	66.29	20.94	24.51	80.00	20.00 (App.)	25.00 (App.)
Co-operatives		..	76.39		..	100.00
Region	66.29	23.00	38.95	80.00	21.91	63.04

*Excluding captive unit.

ANNEXURE 6.3(a)

DETAILS OF PRODUCTION (EX-WORKS) OF UN-BAGGED CRYSTAL SALT IN ANDHRA PRADESH, ORISSA AND WEST BENGAL

Details	Andhra Pradesh				Orissa						West Bengal	
	Iskapalli		Naupada		Coop. Soc.							
	K. Venkata Subbiah	K.A. Reddy	East Coast S. & Chem. Ltd.	Bhavanapadu Salt Fy.	Ganjan Salt Fy.	Goka Salt Fy.	Sri Bikram Pillai Ganjam S. Fy.	Sri P. K. Chatry Ganjam Salt Fy.	Sumadi Salt Works	East Clast Salt & Chem.	Great Bengal Salt Co. Ltd. Contai	Midnapore Natural Salt Ltd.
Category of unit	III	II	I	II	Coop.	Coop.	II	III	I	I	I	II
Total area (acres)	5.57	44	..	28.33	25	606.08	25	0.86	946.74	465	320	70
Developed area (acres)	5.57	44	..	28.33	25	606.00	25	0.86	946.74	465	320	70
Production (tonnes)	656	1374	12000	1053	794.5	13563	1124.6	189	168.64	6538	2370	439
Yield per Dev. Acre (Tonnes)	118	31.20	..	37.17	31.78	22.38	44.98	19.17	17.81	14.06	7.41	6.3
Accounting year ending	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978
Cost of production (Rs./per tonne)												
Power & fuel repairs & maintenance	7.68	5.30	..	1.52	1.03	1.09	0.89	4.87	1.93	2.40	9.60	12.61
	3.05	2.91	..	7.14	5.16	3.71	6.29	8.92	2.53	13.24	30.88	15.01
Labour, scrapping, heaping, washing, carriage and others	22.74	22.62	..	19.65	34.88	26.34	27.23	23.57	30.09	58.36	34.53	32.34
Royalty/assgn. fee	0.44	0.48	..	0.25	0.25	0.39	0.25	..	0.19	0.17	..	..
Other levies					0.48	0.20	0.47	0.62				
Ground rent		0.07			0.08	0.10	0.04		0.11	0.33		
Depreciation	1.11	1.06		0.51	0.80 (est)	0.80	0.80 (est)	1.69	0.47		5.88	3.57
Overhead						3.33	4.58		2.56	13.00	20.27	11.88
Adj for work in process *less* credit for gypsum etc.					0.12	(2.25 tonnes)						
TOTAL	35.02	32.44	64.92	29.07	42.80	36.05	40.25	38.47	37.88	87.50	101.16	75.41
Net cost of production	35.02	32.44	64.92	29.07	42.80	36.05	40.25	38.47	37.88	87.50	101.16	75.41

ANNEXURE 6.3(b)

DETAILS OF PRODUCTION, YIELD, COST OF PRODUCTION AND FAIR SELLING PRICE-EX-WORKS (CRYSTAL UN-BAGGED) SALT IN ANDHRA PRADESH ORISSA AND WEST BENGAL

Details	Andhra Pradesh			Orissa			Humma Co-op. Soc.		West Bengal	
	K.A. Reddy	Bhawana-padu	K. Venk-ata Subhiah	Sumadi salt Works	Ganjam salt W. Vikaram Pillai	Ganjam Salt W. P.K. Chattry	Goka Factory	Ganjam salt Factory	Great Bengal Salt Co. Ltd. Contai	Midnapur Natural Salt Ltd. Contai.
Season	8 Mon.	8 Mon.	8 Mon.	7 Mon.	7 Mon.	7 Mon.	7 Mon.	7 Mon.	6 Mon.	6 Mon.
Category of unit	II	II	III	I	II	III	Coop.	Coop.	I	II
Source of brine	Pit Brine	Sea brine	Pit brine	Sea brine	Sea brine	Sea brine	Sea brine	Sea brine	Sea brine	Sea brine
Production (tonnes)	1373	1053	656	16864	1124	189	13563	794.5	2370	439
Total area (acres)	44	20.33	5.575	946.74	25	9.86	..	25	320	70
Developed area (acres)	44	20.33	5.575	17.81	44.98	19.17	22.38	31.78	7.41	6.3
Yield per Dev. acre (ton)	31.20	37.17	11.0	17.81	44.98	19.17	22.38	31.78	7.41	6.3
Year of account ending	1978	1978	1978	April' 77 to March '78	1978	1978	June, 1978	June, 1978	1978	April, 76 to March' 77
Cost of production (Rs./per tonne)	32.44	29.07	35.02	37.88	40.25	38.47	36.05	42.80	101.16	75.41
Gross return (int. & P.T. return at 14% of N.W.)	7.14	3.63	4.12	5.76	7.91	14.08	7.95	9.08	40.82	42.17
Fair selling price (ex-works)	39.58	32.70	39.14	43.64	48.16	52.55	44.00	51.88	141.98	117.58
Cess	1.75	1.75	..	3.50	1.75	..	..	..	3.50	1.75
Total ex-works fair selling price including cess	41.33	34.45	39.14	47.14	49.91	52.55	44.00	51.88	145.48	119.33
Average sales realisation	65	53.32	65.00	Captive to Jaishree Chemicals	66.66 includes Rs. 413 per M.T. for bagging & weighing	52.53 includes Rs. 413 per M.T. for weighing & & bagging	130.00 Includes bagging M.T. & bags per M.T.	130.00 weighing and @3.73 per Rs. 44.69	196.95 for whole-salers godown (Rs. 30.20 per M.T.)	134.30

	Weighted average ex-works fair selling price			Weighted average sales Realisation		
	Andhra Pradesh	Orissa	Bengal	Andhra Pradesh	Orissa	Bengal
Category-I	36.84	50.79	145.48	59.99	78.42	166.75
Category-II	38.34	50.73	119.33	59.93	70.42	134.38
Category-III	42.64	52.55	..	65.00	48.40	..
Co-operatives	..	44.00	..	..	81.58	..
Region	39.26	44.93	141.39	61.01	79.81	161.69

ANNEXURE—6.4(a)

DETAILS OF COST OF PRODUCTION (EX-WORKS) OF UN-BAGGED CRYSTAL SALT IN RAJASTHAN.

Details	Sambhar Lake			Didwana			Kuchaman City		
	Sambhar, Salts Ltd.			Rajasthan Salts & Chem. Works.					Phalodi
	Actual 1977-1978	Budget 1978-1979	Normal cost (adjusted) 1978-79	By-product from Sod. Sulphate Plant	Deptt. pans	Pans under hereditory use & on agreement	Harish salt works	Annapurna salt works	Agarwal salt works
Category of unit	I						II	II	II
Total area (acres)	57600	57600	57600	Total area—1910 acres.			20.00	63.00	80.80
Dev. area(acres)	19200	19200	19200	(Approximately 955 acres)			20.00	50.00	30.00
Production (tonne)	8526	60000	200000	5040.30	6255.0	66539.75	918.00	1664.325	7059.938
Yield per acre	0.44	3.13	10.42	..		varies from 284—456	45.90	33.29	255.35
Accounting year (ending)	30-9-78	30-9-79	30-9-79	31-3-78	31-3-78	31-3-78	10-11-77 to 31-10-78	Dasehra year 1974	10-11-77 to 31-10-1978
Cost of production (Rs./per tonne)									
Power & Fuel.	21.37	4.44	4.44	..	0.90		4.21	2.72	3.22
Repair & Maintenance	54.11	16.90	5.07	..	1.20	..	15.09	18.16	11.80
Labour, strapping, heaping, washing, carriage and others	55.36	15.64	17.99	15.80	12.48	42.50	14.01	19.62	7.98
oyalty/Assgn. fee									
Other levies							0.11		0.06
Ground rent, if any.	64.51	9.17	2.75				0.33	0.58	0.17
Depreciation	31.95	25.00	1.75		0.31			0.54	1.68
Overheads	309.52	50.22	15.07		2.89	3.78	8.68	7.55	12.42
Adj. for work in process Total	546.82	121.37	47.07	15.80	17.78	46.28	42.43	49.17	37.33
Less credit for gypsum cost of prodn.	546.82	121.37	47.07	15.80	17.78	46.28	42.43	49.17	37.33

ANNEXURE—6.4(b)

DETAILS OF PRODUCTION, YIELD COST OF PRODUCTION AND FAIR SELLING PRICE-EX-WORKS (CRYSTAL UN-BAGGED) SALT)—RAJASTHAN

Details	Sambhat salts limited	Rajasthan salt & chem. works	Harish salt works, Kuchaman city	Annapurna salt works, Kuchaman city	Aggarwal salt works, Phalodi
Season	9-10 Mon.	9-10 Mon.	9-10 Mon.	9-10 months.	9-10 months.
Category of unit	I	I	II	II	II
Source of brine	Lake brine	Pit brine	Pit brine	Pit brine	Pit brine.
Production (Tonnes)	200000 (est.)	77834.75	918	1664.325	7059.938
Total area (acres)	57600	1910	20	63	80.8
Developed area (acres)	19200	955	20	50	30.0
Yield per Dev. acre (tonne)	10.42	81.50	45.90	33.29	255.33
Year of account (ending.)	Normal year.	31-3-1978	10-11-77 to 31-10-78	Dasehra year 1973-74	10-11-77 to 31-10-78
Cost of production (Rs./per tonne)	47.07	42.02	42.43	49.17	37.33
Gross return. Int. & P.T. return at 14% of N.W.	4.68	8.77	7.59	10.54	10.73
Fair selling price (ex-works)	51.75	50.79	50.02	59.71	48.06
Cess.	3.50	3.50	1.75	1.75	1.75
Total ex-works fair selling price (including cess)	55.25 (est.)	54.29	51.77	61.46	49.81
Av. sales realisation	110.00 (est.) (Omitted in Wt. average calculaion)	55.30	82.16	68.97	63.52

	Weighted average ex-works for selling price	Weighted average sales realisation.
Category—I	54.29	55.30
Category—II	52.01	66.24
Category—III	..	..
Co-operatives.	..	..
Region	54.04	56.51

84-L/P(N)347DofIDev—9

ANNEXURE 6.5(a)

DETAILS OF COST OF PRODUCTION (EX-WORKS) OF UN-BAGGED CRYSTAL SALT IN MAHARASHTRA

Details	Ishprasad salt works (Bhayander)	Agar Shiva Prasad (Bhayandar)	Munda Salt works. Thana	Mithaghar Sahakari Soc. (Suloman Shah salt works, Wadala.)
Category	I	II	I	II
Total area (Acres)	203-1/4	32-1/3	175	54
Developed area (acres)	203-1/4	32-1/3	175	54
Production (Tonnes)	5760	600	3000	2177
Yield per Developed acre (Tonne)	28.3	18.75	17	43
Year of account ending				
Cost of production (Rupees/per tonne)				
Power and Fuel	0.80		1.31	0.85
Repair & Maintenance	7.90	11.66	10.32	0.65
Labour : Scrapping, heaping, washing, carriage & others	17.36	33.33	23.33	21.45
Royalty/Assignment fee.				
Other levies.				
Ground rent (1/2 p. for 40 kgs.)	0.13	0.13	0.23	44.14 (annual lease money)
Depreciation	0.65		0.70	2.55
Overheads	4.51	0.50	3.50	0.90
Adj. for Work in process.				
Total	31.35	45.12	39.39	27.35
Less credit for gypsum etc..			3.15	
Net cost of production.	31.35	45.12	36.24	27.35

ANNEXURE 6.5(b)

DETAILS OF PRODUCTION, YIELD, COST OF PRODUCTION AND FAIR SELLING PRICE—EXWORKS (CRYSTAL UN-BAGGED) SALT IN MAHARASHTRA

Details	Ishaprasad salt works.	Agar Shiva Prasad	Mundra salt works.	Mithagarh Sahakari society
Season	7 months.	7 months.	7 months.	7 months.
Category of unit	I	II	I	Co-op.
Source of brine	Sea brine	Sea brine	Sea brine	Sea brine.
Production (Tonnes)	5760	600	3000	2177
Total area (acres)	203-1/4	32-1/3	175	54
Developed area (acres).	203-1/4	32-1/3	175	54
Yield per Developed acre (tonne)	28.3	18.6	17.1	40.3
Year of account ending	1978	1978	1978	1978
Cost of production (Rupees/per tonne)	31.35	45.12	36.24	27.35
Gross return (Int. & Pt. return @ 14% M.W.)	17.38	9.21	7.52	24.20
Fair selling price (ex-works)	48.73	54.33	43.76	50.55
Cess	3.50	1.75	3.50	—
Total ex-works fair selling price including cess.	52.23	56.08	47.26	50.55
Average sales realisation	100.00	80.00	95.00	125.00

	Weighted average ex-works fair selling price	Weighted arerage sales realisation
Category—I	50.53	98.29
Category—II	56.08	80.00
Category—III	—	—
Co-operatives	51.55	125.00
Region	51.01	102.38

ANNEXURE 6.6

FINANCIAL ANALYSIS AND WORKING RESULTS OF COMPANIES MANUFACTURING SALT

(In '000 Rupees)

Financial Year	Jamnagar				Bhavnagar		Kharaghoda		West Bengal (Contai)			
	Salt & Allied Ind. Limited Year ending September		Sikka Salt works Year ending August		Bhavnagar Salt Ind. Ltd. Year ending July		Hindustan Salts Ltd. Year ending September		The Great Bengal Salt Co. Sale as Cal. yr.		Midnapore Natural Salt (P) Ltd. Yr. endg. Mar.	
	1978	1977	1978	1977	1978	1977	1978	1977	1978	1977	1978	1977
1	2	3	4	5	6	7	8	9	10	11	12	13
A. Capital Employed												
(i) Gross fixed Assets	2715	2705	631	660	2963	2950	5517	6079	528	525	75	75
(ii) Cumulative depreciation	1750	1466	27	33	2724	2691	2281	2468	338	325	13	11
(iii) Net fixed Assets. (i—ii)	965	1239	604	627	239	250	3236	3611	190	200	62	64
(iv) Current Assets, loans & advances	1568	1371	346	373	3041	3165	7227	6926	110	100	4	3
(v) Current liabilities & provisions	203	108	93	52	1022	1281	1805	2153	88	87	8	9
(vi) Working capital (iv-v)	1361	1263	253	321	2019	1884	5422	4773	22	13	(—) 4	(—) 6
(vii) Capital employed (iii+iv)	2326	2502	857	948	2258	2143	8658	8384	212	213	58	58
B. Sources of Finance												
(i) *Share Capital*												
(a) Equity	770	770	741	814	500	500	7372	9327	180	180	50	50
(b) Preference	—	—	—	—	—	—	—	—	—	—	—	—
(c) Bonus shares	—	—	—	—	300	300	—	—	—	—	—	—
(d) Total (a+b+c)	770	770	741	814	800	800	7372	9327	180	180	50	50
(ii) (a) Reserves & Surplus	112	20	—	—	156	154	2126	1	5	2	—	—
(b) Outside investments	—	—	—	—	—	—	5	5	—	—	—	—
(c) Net Reserve (a—b)	112	20	—	—	156	154	2121	(—)4	5	2	—	—
(iii) Net worth (i—d)+(ii—c)	882	790	741	814	956	954	9493	9323	185	182	50	50
(iv) *Borrowings*												
(a) Debenture	—	—					—	—	—	—	—	—
(b) Institutional borrowings	—	—	—	—	932	843	—	—	14	18	—	
(c) Others	1444	1712	116	134	993	914	—	—	24	24	49	46
(d) Total (a+b+c)	1444	1712	116	134	1925	1757	—	—	38	42	49	46

(v) Total (iii+iv—d)	2326	2502	857	940	2381	2711	—	—	3	224	99	96
(vi) (a) Capital work in progress	—	—	—	—	—	—	99	20	—	—	3	—
(vi) (b) Past losses & Misc. expenses	—	—	—	—	123	568	36	919	11	11	38	38
(vii) Capital employed (v—vi)	2326	2502	857	948	2258	2143	8654	8384	212	213	58	58
(viii) Net worth content in (vii)	882	790	774	814	942	754	4935	—	176	173	29	30
C. (i) Average net fixed as sets.	1102	1267	616	642	249	280	3424	—	195	202	63	65
(ii) Average working capital	1312	1234	287	340	1952	2328	5098	—	18	26(—	5(—)	7
(iii) Average capital employed	2414	2501	903	982	2201	2608	8522	—	213	228	58	58
(iv) Average net work (content of capital employed)	836	826	778	845	348	915	4851	—	175	174	30	31
D. (i) Gross profit before interests and bonus etc.	493	230	197	29	594(—)	492	1099	90	46	61	5	2
(ii) Interest (net)	61	242	15	21	165	179	—	—	4	2	3	3
(iii) Bonus	106	56	7	3	25	22	223	189	11	9	—	—
(iv) Pre-tax profit after int. & Bonus (i-ii-iii)	326	(—) 68	175	5	404	(—) 693	876	(—) 99	31	50	2 (—)	1
(v) Provision for taxation		—	—	—	—	—	—	—	16	17	—	—
(vi) Post tax profit (iv-v)	326	(—) 68	175	5	404	(—) 693	876	(—) 99	15	33	2 (—)	1
E. (i) Sales (net of excise duty return & rebate etc.)	2105	1989	663	301	2636	1665	5399	5277	367	379	32	35
(ii) Cost of Sales (Ei-Di)	1612	1759	466	272	2042	2157	4300	5187	321	318	27	33
(iii) Depreciation	59	58	27	33	33	40	94	93	14	15	2	2
(iv) Cost of Sales, excluding depreciation (ii-iii)	1553	1702	439	239	2009	2117	4206	5094	307	303	25	31
F. *Gross Production* % *of*												
(i) Average capital employed	20.4	9.2	21.8	3.0	27.0	—8.9	12.9	—	21.6	26.8	8.62	3.45
(ii) Net sales	23.4	11.6	29.7	9.6	22.5	—29.5	20.4	—	12.5	16.1	15.63	-5.71
(iii) Cost of sales	30.6	13.5	42.2	10.7	29.1	—22.8	25.6	—	14.3	19.2	18.52	6.06
Pre-tax porfit as a % of												
(i) Average capital employed	13.5	—2.7	19.4	0.5	18.4	—26.6	10.3	—	14.6	21.9	3.45	—1.72
(ii) Average net worth	9.0	—8.2	22.5	0.6	47.6	—75.7	—	—	17.71	28.7	6.67	—3.23
H. Post tax profit as a % of average net worth	39.0	—8.2	22.5	0.6	47.6	—75.7	—	—	8.6	19.0	6.67	—3.23
I. *Average working capital related to cost of sales excluding depreciation as*												
(a) Percentage	—	—	—	—	—	—	—	—	5.9	8.6	—	—
(b) Month's cost of sale	10.14	8.7	7.8	17.0	11.6	13.1	14.5	—	0.7	1.03	—	—
J. Debts : Equity ratio (ratio of debts to net worth the latter being always stated as one.)	1.64	2.16	0.16	0.16	1.49	1.84	—	—	0.21	0.23	0.98	0.92
K. Sales as a % of average capital employed	—	—	—	—	—	—	—	—	172.30	166.23	55.17	60.34

ANNEXURE 6.7

AVERAGE PRICE OF SALT—WHOLESALE AND RETAIL—PREVAILED IN SOME OF THE CONSUMING STATES DURING 1978

State	District	Wholesale price per quintal		Retail price per Kilogram	
		Rs. P.	Rs. P.	Rs. P.	Rs. P.
		Iodised salt.	Mandi rock salt	Iodised salt	Mandi rock salt
achal Pradesh	Chamba	32.00	37.15	0.35	0.40
	Shmla	26.60	—	0.29	—
	Mandi	—	—	0.32	0.31
	Solan	28.00	—	0.30	0.31
	Nahan	28.00	39.76	0.31	0.42
	Bilaspur	28.96	—	0.31	0.29
Arunachal Pradesh	Itanagar	46.00	—	0.50	—
	Tezu	65.00	—	0.75	—
	Ziro	57.00	—	0.60	—
	Bomdila	52.00	—	0.60	—
	Pasighat	45.00	—	0.50	—
	Anini	50.00	—	0.50	—
Mizoram	Aizawal	64.00 to 66.00	—	0.75 to 0.82	
	Lunglei	100.00	—	1.25 to 2.00	
	Saiha	125.00	—	1.50	
		Common salt		*Common salt*	
Tripura	Agartala	43.20	—	0.50	—
	Dharamnagar	33.85	—	0.40	—
	Kamalpur	45.00	—	0.48	—
	Gandachurra (Remotest in accessable market)	57.00	—	0.80	—
	Udaipur	48.00	—	0.53	
	Sabroom	51.30	—	0.55	
Meghalaya	Shillong	30.00 to 32.00	—	40 p. to 90 p.	
	New Gauhati	35.00 to 38.00	—	0.36	
	Tura	43.00 to 60.00	—	60 p. to 80 p.	
	Jowai	26.00 to 34.00	—	40p. to 50p.	
Assam	Gauhati	31.00 to 46.00	—	40 p. to 80p.	
	Dibrugarh	48.00 to 50.00	—	55p. to 70p.	
	Tinsukia	45.00 to 49.00	—	50p. to 70p.	
	Tezpur	33.00 to 45.00	—	40p. to 60p.	
	Silchar	34.00		40p. to 60p.	
	Dhubri	26.00 to 51.00	—	40p. to 50p.	
		Crused salt		*Crushed salt*	
West Bengal	Calcutta	29.00 to 30.00	—	40p. to 60p.	
	Barasat	45.00	—	0.50	
	Berhampur	40.00	—	0.50	
	Burdwan	29.00 to 40.00	—	40p. to 50p.	
	Midnapur	30.00 to 35.00	—	35p. to 40p.	
	Howrah	42.00	—	0.60	
	Siliguri	34.67	—	0.60	

ANNEXURE 6 8

EX-FACTORY PRICE OF SALT (INCLUDING CESS BUT EXCLUDING THE COST OF BAGS) IN IMPORTANT SALT PRODUCING CENTRES-MONTH-WISE DURING 1977 to 1979.

(Minimum/Maximum Prices in Rupees per tonne)

Centre	Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Jamnagar													
Un-crushed	1979	80.00	80.00	80.00	80.00	80.00	80.00	80.00	100.00	100.00	100.00	95.00	120.00
		85.00	85.00	85.00	85.00	85.00	85.00	85.00	120.00	120.00	120.00	96.00	120.00
	1978	50.00	51.50	50.00	55.00	57.00	60.00	60.00	75.00	75.00	70.00	75.00	75.00
		60.00	51.50	60.00	57.00	57.00	65.00	85.00	75.00	80.00	75.00	75.00	80.00
	1977	—	—	—	—	—	—	30.00	45.00	48.00	48.00	45.00	50.00
									50.00	53.00	57.00	57.00	60.00
Crushed	1979	85.00	85.00	80.00	95.00	95.00	95.00	95.00	100.00	110.00	110.00	105.00	130.00
		105.00	105.00	115.00	115.00	115.00	115.00	1 5.00	130.00	130.00	130.00	106.00	131.00
	1978	65.00	56.50	59.50	70.00	70.00	71.00	75.00	95.00	85.00	75.00	75.00	85.00
		75.00	76.50	75.00	85.00	126.50	116.00	105.00	105.00	100.00	85.00	95.00	100.00
	1977	27.50	27.50	31.50	27.50	27.50	27.50	27.50	47.50	50.00	53.00	47.00	60.00
		30.50	30.50	36.50	30.50	30.50	30.50	30.50	—	50.50	63.00	67.00	70.00
Gandhidham Un-crushed	1979	111.50	75.00	71.50	71.50	71.50	71.50	—	60.00	60.00	60.00	95.00	75.00
		111.50	115.00	115.00	115.00	115.00	115.00		120.00	120.00	120.00	120.00	115.00
	1978	30.50	30.50	65.00	60.00	70.50	—	70.30	85.00	80.00	88.00	88.00	111.50
		63.00	63.00	75.00	60.00	—	—	70.30	106.10	105.00	111.50	112.00	111.50
	1977	—	—	—	—	—	—	—	34.50	37.50	—	30.5	30.50
									47.50	67.50	—	67.50	58.50
Crushed	1979	121.50	85.00	85.00	85.00	85.00	85.00	—	70.00	70.00	70.00	105.00	105.00
		121.50	125.00	125.00	125.00	125.00	125.00		130.00	130.00	130.00	130.00	130.00
	1978	53.00	53.00	—	65.00	—	—	80.00	93.00	—	78.00	98.00	121.50
		73.00	73.00		65.00			80.00	118.00		120.00	122.00	121.50
	1977	12.50	12.50	12.50	12.50	25.00	22.50	20.00	—	70.00	55.00	50.30	61.00
		15.00	15.00	15.00	15.50	—	25.00	—	—	—	—	—	—

ANNEXURE 6.8—contd.

Centre	Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Bhavnagar													
Uncrushed	1979	80.00	65.00	65.00	65.00	60.00	—	39.00	80.00	80.00	65.00	80.00	80.00
		80.00	125.00	95.00	95.00	80.00		60.00	80.00	80.00	65.00	80.00	140.00
	1978	63.50	—	70.00	45.00	36.50	36.50	45.00	70.00	70.00	75.00	80.00	92.50
		63.50		85.00	45.00	45.00	60.00	45.00	78.00	75.00	80.00	90.00	97.50
	1977	—	—	—	—	—	—	35.50	39.50	38.50	46.00	46.00	46.00
								43.50	—	—	—	—	58.50
Crushed	1978	50.00	60.00	56.00	75.00	48.00	60.00	65.00	85.00	85.00	90.00	94.50	105.00
		70.00	75.00	56.00	78.00	85.00	90.00	65.00	90.00	85.00	95.00	97.50	115.00
	1977	40.00	41.50	35.00	35.00	32.50	32.50	45.50	65.00	65.00	46.00	60.00	60.00
		40.50	46.50	45.00	45.00	35.50	36.50	65.50	65.50	—	—	—	—
Dhrangadhra													
Baragara	1979	76.00	106.00	81.50	65.00	60.00	137.50	147.50	120.00	120.00	105.00	84.00	85.00
		123.00	193.00	116.50	75.00	176.60	142.20	152.50	200.00	140.00	145.00	94.00	100.00
	1978	40.50	47.00	40.50	40.50	45.00	32.00	44.00	38.00	53.00	53.00	53.00	65.00
		70.00	72.00	69.50	69.50	77.00	72.00	60.00	78.00	88.00	88.00	88.00	75.00
	1977	11.00	11.50	11.50	11.50	10.50	10.50	10.50	19.00	16.50	19.00	19.50	28.50
		36.00	36.50	34.50	29.50	28.50	28.50	28.50	41.00	43.50	43.50	48.50	68.00
Kharaghoda													
Baragara	1979	51.30	51.50	46.50	46.50	46.50	56.50	56.50	56.50	56.50	56.50	56.50	56.50
		61.00	61.00	61.00	61.00	66.00	66.00	66.00	66.00	66.00	66.00	66.00	66.00
	1978	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00		61.00
		51.00	51.00	55.50	55.50	55.50	55.50	55.50	55.50	55.50	55.50		55.00
	1977	31.00	31.00	31.00	31.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
		55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	51.00	51.00	51.00	51.00
Tuticorin	1979	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
		50.00	50.00	50.00	50.00	50.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
	1978	32.00	32.00	100.00	100.00	80.00	60.00	30.00	40.00	30.00	30.00	30.00	30.00
		32.00	32.00	120.00	120.00	85.00	70.00	60.00	50.00	50.00	50.00	50.00	50.00
	1977	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00
		25.00	25.00	25.00	25.00	25.00	25.00	—	—	—	—	—	—

Didwana													
Pan Salt	1979	90.00	92.50	114.90			92.50	92.50	92.50	92.50	92.50	92.50	92.50
		160.00	162.50	126.00			162.50	162.50	162.50	162.50	162.50	162.50	162.50
	1978	76.50	71.50	71.50	70.00	70.00	70.00	70.00	7.00	80.00	85.00	80.00	80.00
		113.60	78.60	83.60	140.00	140.00	140.00	110.00	110.00	80.00	85.00	80.00	80.00
	1977	36.50	40.00	40.00	36.50	36.50	36.50	36.50	44.00	—	44.00	44.00	44.00
		50.00	50.00	50.00	49.00	49.00	49.00	49.00	56.00	—	56.50	56.50	49.50
Phalodi													
Pan Salt	1979	55.00	71.70	70.50	75.00	65.00	80.50	80.50	65.00	70.00	65.00	67.50	60.50
		80.00	101.70	90.50	95.00	80.00	100.50	100.50	90.00	100.00	95.00	97.50	95.00
	1978	50.00	85.00	75.00	48.00	66.70	55.00	55.00	45.00	40.00	61.50	55.00	60.00
		70.00	120.00	100.00	75.00	86.70	70.00	105.50	90.00	90.00	115.50	125.00	120.00
	1977	30.00	44.00	35.00	34.50	32.50	32.50	47.60	47.10	47.60	40.00	44.00	60.00
		53.00	57.00	44.00	41.00	80.42	80.42	80.00	56.70	66.70	80.00	80.00	90.00

ANNEXURE 6.9

F.O.R. PRICE OF SALT (INCLUDING CESS BUT EXCLUDING THE COST OF BAGS) IN SOME IMPORTANT SALT PRODUCING CENTRES—MONTH-WISE—DURING 1971-1979.

Minimum/Maximum
(Prices in Rupees per tonne)

Centre	Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Jamnagar													
Crushed	1979	100.00	100.00	110.00	110.00	110.00	110.00	110.00	115.00	110.00	90.00	95.00	115.00
		120.00	120.00	130.00	130.00	130.00	130.00	130.00	130.00	120.00	100.00	115.00	130.00
	1978	80.00	75.00	85.00	79.00	78.50	85.00	90.00	100.00	100.00	90.00	90.00	100.00
		90.00	100.00	90.00	125.00	135.00	135.00	130.00	120.00	115.00	100.00	110.00	115.00
	1977	62.00	62.00	73.00	62.50	62.00	62.00	62.00	84.00	65.00	65.00	62.00	75.00
		63.00	63.00	75.00	63.50	63.50	63.00	63.00		75.00	75.00	82.00	85.00
Un-crushed	1979	95.00	95.00	100.00	95.00	95.00	95.00	95.00	120.00	95.00	80.00	85.00	100.00
		100.00	100.00	110.00	100.00	100.00	100.00	100.00	125.00	105.00	85.00	90.00	110.00
	1978	70.00	65.00	65.00	65.50	65.00	70.00	70.00	90.00	90.00	85.00	85.00	90.00
		75.00	80.00	90.00	80.00	80.00	80.00	100.00	100.00	95.00	90.00	90.00	95.00
	1977	39.00	39.00	49.00	38.50	38.50	38.50	—	—	—	—	—	—
		54.00	67.00	51.00	50.00	50.50	50.50						
Gandhidham													
Crushed	1979	120.00	100.00	115.00	100.00	100.00	100.00		100.00	105.00	105.00	115.00	100.00
		125.00	140.00	150.00	170.00	170.00	170.00	—	160.00	165.00	165.00	160.00	115.00
	1978	75.00	75.00	95.00	100.00	95.00	95.00	80.00	80.00	105.00	110.00	110.00	120.00
		107.00	110.00	110.00	110.00	100.00	100.00	130.00	115.00	130.00	140.00	135.00	125.00
	1977	55.00	54.00	52.00	46.00	46.00	51.50	46.00	65.00	42.50	—	65.00	42.50
			57.00	59.00			61.00	75.00	75.00	90.00		65.00	60.00
Un-crushed	1979	115.00	90.00	105.00	90.00	90.00	90.00	—	110.00	95.00	100.00	80.00	78.00
		115.00	130.00	140.00	160.00	160.00	150.00		115.00	135.00	120.00	95.00	118.00
	1978	59.00	89.00	85.00	85.00	80.00	80.00	70.00	70.00	95.00	100.00	100.00	115.00
		96.00	110.00	90.00	95.00	85.00	85.00	100.00	110.00	120.00	130.00	125.00	115.00
	1977	—	—	—	—	—	—	—	—	—	—	—	—

Bhavnagar													
Crushed	1979	125.50	95.00	145.00	75.00	90.00	90.00	130.00	105.00	105.00	105.00	95.00	125.00
		—	155.00	—	145.00	150.00	150.00	135.00	120.00	120.00	120.00	105.00	135.00
	1978	75.00	75.00	75.00	85.00	95.00	95.00	85.00	105.00	105.00	110.00	117.00	130.00
		85.00	85.00	90.00	98.00	104.00	110.00				115.00	120.00	140.00
	1977	71.50	73.00	68.00	69.00	70.00	70.00	84.00	75.50	59.50	50.00	70.00	70.00
		76.50	78.00	78.00	79.50	73.00	74.00	104.00	95.50	69.50	50.50	70.00	90.00
Un-crushed	1979	93.00	85.00	90.00	85.00	..	..	..	100.00	55.00	80.00	90.00	95.00
			115.00		115.00				110.00	90.00	90.00	100.00	105.00
	1978	—	—	—	65.00	85.00	65.00	65.00	85.00	85.00	90.00	90.00	
					85.00					95.00	95.00	100.00	
	1977	—	—	—	—	—	—	—	—	..	—	—	—
Dharangadhra													
Bhragara	1979	100.00	125.00	85.00	65.00	61.50	137.50	147.50	120.00	75.00	105.00	84.00	85.00
		140.00	210.00	120.00	78.50	180.00	146.00	156.00	203.00	90.00	135.00	97.50	103.00
	1978	75.00	75.00	50.50	53.50	77.00	77.00	55.00	54.00	67.50	67.50	70.00	80.00
		85.00	90.00	71.50	84.50	92.00	92.00	80.00	96.00	107.50	107.50	105.00	115.00
	1977	56.50	57.00	57.00	55.00	54.00	54.00	54.00	62.50	36.00	38.50	39.00	48.00
		79.00	79.50	77.50	72.50	71.50	71.50	71.50	84.00	58.50	59.00	63.50	85.00
Kharaghoda													
Baragara	1979	92.95	86.30	94.80	94.80	52.00	62.00	62.00	62.00	70.00	73.70	63.50	62.50
		111.70	93.00	112.80	112.80	75.00	75.00	75.00	75.00	100.00	75.00	75.00	75.70
	1978	97.50	99.00	84.00	58.50	58.50	48.70	48.70	48.70	48.70	43.00	6.50	63.50
		121.50	124.00	114.00	81.00	87.50	87.50	90.00	92.00	98.50	98.50	93.50	128.00
	1977	72.90	72.90	72.90	72.90	67.10	67.10	67.10	67.10	33.00	33.00	33.00	33.00
		96.90	96.90	96.90	92.60	89.10	92.60	92.60	94.10	60.00	60.00	60.00	60.00
Tuticorin	1979	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
		75.00	75.00	90.00	75.00	85.00	85.00	85.00	85.00	85.00	85.00	85.00	85.00
	1978	82.00	90.00	60.00	70.85	100.00	85.00	55.00	65.00	55.00	55.00	50.00	55.00
		—	—	115.00	108.80	110.00	95.00	75.00	85.00	75.00	75.00	98.00	75.00
	1977	62.50	62.50	62.50	62.50	62.50	62.50	62.50	55.00	72.50	72.50	85.00	82.50
		70.00	70.00	70.00	70.00	70.00	70.00	70.00	62.50	82.50	82.50	92.50	85.00

ANNEXURE 6.9—*concld.*

Centre	Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Didwana													
Pan Salt	1979	103.00	103.00	114.00	114.00	—	104.00	104.00	104.00	104.00	104.00	104.00	104.00
		173.00	173.00	174.00	174.00		174.00	174.00	174.00	174.00	174.00	174.00	174.00
	1978	119.00	105.00	114.00	83.00	84.90	83.00	83.00	83.00	83.00	94.00	94.00	94.00
		156.10	117.10	126.00	53.00	—	90.00	123.00	123.00	98.00	94.00	94.00	94.00
	1977	74.20	77.70	77.00	65.00	65.00	65.00	65.00	55.70	—	47.50	47.50	52.50
		87 70	87.70	87.70	77.50	77.50	77.50	77.50	68.20		60.00	60.00	153.00
Phalodi													
Pan Salt	1979	66.75	71.75	70.50	80.50	80.50	80.50	80.50	80.50	70.00	65.00	65.00	65.00
		91.75	101.75	90.75	95.50	100.00	100.50	105.50	105.50	100.00	95.50	97.50	95.00
	1978	101.25	96.70	86.75	59.75	75.00	75.00	66.75	116.75	51.75	60.50	66.75	66.75
		171.25	121.70	111.75	86.75	81.75	81.00	117.50	131.75	101.75	115.50	136.75	121.75
	1977	71.50	83.20	74.20	73.70	72.30	72.30	88.40	68.90	59.30	51.70	55.70	71.70
		93.50	96.20	83.20	80.20	80.20	82.50	120.00	78.40	79.40	91.70	91.70	101.70

NOTE : For prices of salt per tonne for the year 1977 are inclusive of cost of gunny bags.
The cost of bags varied from Rs. 20/- to Rs. 30/- depending on its quality per tonne.

ANNEXURE 6.10

RETAIL PRICE OF SALT IN SOME IMPORTANT CONSUMING STATES—MONTH-WISE DURING 1977-1979.

(Minimum/Maximum Prices in paise per Kg.)

State Place	Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Assam													
Gauhati	1979	40	40	40	40	40		40	40	48	48	48	48
		80	80	80	80	90		80	100	100			
	1978	40	40	40	40	40	40	40	40	40	40	40	—
		50	50	50	50	50	75	75	75	80	70	70	
	1977	30	30	30	30	30	30	30	30	35	35	35	35
		35	35	35	35	35	35	35	40	40	40	40	40
Tezpur	1979	40	40	40	40	40	—	40	48	48	48	48	—
		70	70	80	80	80		80	80	80	80	80	
	1978	35	70	70	60	40	40	34	50	50	40	40	—
		40	80	80	70	60	60	60	60	60	60	60	
	1977	28	28	28	28	28	28	28	28	30	30	33	33
		30	30	30	30	30	30	30	30	40	40	45	45
Dibrugarh	1979	65	70	55	60	70	—	48	48	48	48	48	
		80	80	80	80	80		80	80	75	60	60	
	1978	33	70	60	60	60	60	60	50	50	50	50	
		55							70	60	70	65	
	1977	30	'0	30	30	30	30	28	30	30	40	33	33
						35	35	35	35	35		35	40
Tripura													
Tripura (North)	1979	50	50	50	50	50	50	54	54	44	44	44	44
								60		75	75	80	80
Tripura (North)	1978	37	40	39	39	40	40	36	40	40	50	50	50
		60	50	50	48	60	55	60	56	60	60		
	1977	30	30	30	30	30	30	30	30	30	30	35	40
		35	35	35	35	35	35	35	35	35	40	50	55

ANNEXURE 6.10—*contd.*

State/Place	Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Tripura (West)	1979	50 75	50 75	—	—	—	—	—					
	1978	44 55	40 58	45 55	45 55	45 55	45 55	45 60	55 60	50 60	—	—	
	1977	35 50	35 45	35 50	35 50	35 50	35 50	35 50	35 50	35 50	35 50	40 50	45 70
Sikkim													
Gangtok	1979	60	60	60	60	60	60	60	60	70	70	70	70
	1978	60	60	60	60	60	60	60	60	60	60	—	—
	1977	45	45	45	45	45	45	45	45	45	45	45	45
Ranipur	1979	58	58	58	58	58	58	58	58	100	80 100	80 100	80 100
	1978	58	58	58	58	58	58	58	58	58	58	—	—
	1977	43	43	43	43	43	43	43	43	43	43	43	43
Maniput													
Manipur (Central)	1979	75	75	75 100	100	100	100	100	—	—	—	—	—
	1978	—	75 150	75	61 75	65	65	65 70	70	65 75	—	—	—
	1977	50	50 55	53	53	53	50 60	50 60	50 60	50 60	50 60	50 60	50 60
Tengoupal	1979	—	—	—	—	—	—	—	—	—	—	—	—
	1978	60 150	150	100	75 100	75 100	75 100	75 100	100	65 75	70 75	75	75
	1977	60 80	..	60 80	60 80	—	60 75	60 100	60 100	50 100	60 100	60 100	40 70
Nagaland													
Dimapur	1979	80	80	80	—	—	—	—	—	—	—	—	—
	1978	40	—	—	—	—	—	60	—	60	.60	60	—
	1977	40	40	—	40	40	40	40	40	40	40	40	40

Kohima	1979	—	—	—	—	—	—	—	—	—	—	—	—
	1978	50	—	—	75	75	—	—	—	..	—	—	—
	1977	50	45	—	45	50	50	50	50	50	50	50	50
Arunachal Pradesh													
Itanagar Tirap.	1979	50	50	50	50	50	50	50	50	—	—	—	—
		48	—	79	60	94	65	—	62	58	—	—	
	1978	85		112	94								
		41	44	44	44	44	43	43	43	43	43	40	40
	1977	80	80	80	80	80	80	80	80	80	62		
Lohit	1978	70	—	70	70	75	75	—	75	75	—	—	—
		55	55	55	55	55	55	55	65	65	65	50	50
	1977											65	
Siong	1978	55	—	55	60	60	—	—	60	60	—	—	—
	1977	41	41	41	41	41	41	41	41	41	41	41	48
											49	49	55
Meghalaya													
Shillong		60	70	70	70	70	70	70	80	80	80	80	80
	1979	80	80	80	90	90	90		90	90	100	100	100
		45	45	50	45	45	45	45	45	45	50	50	60
	1978	50	60	80	60	60	60	50	50	50	60	60	—
		35	35	35	35	35	35	35	35	35	32	35	35
	1977	40	40	40	40	40	40	40	40	40	33	40	40
		52	53	54	54	54	54	54	70	44	44	—	—
Jawai	1979	—	—	—	—	—	—	—	80	—	—		
		37	40	48	48	48	48	48	48	48	—	—	
	1978	40											
		37	37	37	37	37	37	37	37	37	37	37	37
	1977											40	40
Mizoram													
Aizwal		75	75	100	100	75	75	150	125	125	75	—	75
	1979	100	150	150	150	125	125	250	150	150	125		150
		55	55	55	55	55	55	55	55	55	55	55	60
	1978	100	125	100	100	100	100	100	100	100	100	100	82
	1977	53	54	54	53	54	53	53	54	54	53	53	55
											75	83	83
		125	125	125	150	150	—	150	200	150	150	150	150
Lungiloi	1979	200	200	200									

ANNEXURE 6.10—*contd*

State/Place	Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Lungiloi—*contd.*	1978	75	150	150	100	100	100	100	100	100	125	125	125
	1977	75	75	75	100	100	100	100	100	75	75	75	75
West Bengal													
Calcutta	1979	35 160	54	56	56	56	54	57	57	60	64	60	67
	1978	57	54	47	48	42	43	43	40	40	60	51	54
	1977	28	28	28	29	30	30	35	37	37	36	40	36
West Dinajpur	1979	51	55	63	61	64	62	50	50	50	50	50	50
								60	60	60	60	60	60
	1978	56	53	51	50	49	48	45	48	47	48	48	—
	1977	36	36	38	38	37	37	38	38	38	38	38	44
Bihar													
Patna	1979	40	40	40	40	40	40	40	40	40	40	40	40
		50	50	50	50	50	60	70	70	70	70	70	70
	1978	40	40	40	40	40	40	40	40	40	40	40	40
		60	50	50	50	50	50	50	50	50	50	50	50
	1977	30	30	30	—	25	25	25	25	25	25	30	40
			60	60		40	60	60	50	50	50	50	60
Delhi													
Delhi	1979	30	30	30	30	30	30	30	30	30	30	30	30
	1978	17	17	17	43	43	43	—	25		30	30	30
		43	43	43									
	1977	30	30	30	30	30	30	40	40	40	40	40	40

Source :—State Governments.

ANNEXURE 7.1

DETAILS OF CESS COLLECTION AND ITS DISTRIBUTION DURING 1969-70 TO 1978-79.

(Figures in Rs./Million).

Year	Cess collected	Distribution of cess proceeds on		
		Administration	Development & labour welfare	Loan
1969-70	9.92	4.50	0.69	1.69
1970-71	12.18	4.79	0.96	0.78
1971-72	11.09	5.30	0.39	0.09
1972-73	11.72	5.73	0.30	—
1973-74	10.62	5.80	0.50	0.07
1974-75	12.34	5.92	0.95	0.25
975-76	11.67	7.46	1.43	0.06
1976-77	11.32	7.17	1.51	0.55
1977-78	12.78	7.30	3.14	0.48
1978-79	13.30	7.31	4.59	0.46

सत्यमेव जयते

ANNEXURE 9.1

AVERAGE COMPOSITION OF COMMON SALT PRODUCED IN VARIOUS SALT WORKS IN THE COUNTRY

Name of the salt Fy.	Category	1977						1978						1979					
		NaCl	CaSo$_4$	MgSo$_4$	MgCl$_2$	Inso-lubles	Undeter-mind	NaCl	CaSo$_4$	MgSo$_4$	MgCl$_2$	Inso-lubles	Unde-ter-mind	NaCl	CaSo$_4$	MgSo$_4$	MgCl$_2$	Inso-lubles	Unde-ter-mind
								ANDHRA PRADESH											
Bhavanapadu	I	94.43	3.41	10.0	—	0.22	1.84	97.61	0.78	0.60	—	0.19	0.82	97.14	0.96	0.24	—	1.38	0.28
	II	96.87	1.26	0.50	0.57	0.80	—	96.10	0.76	0.21	0.68	0.86	1.39	97.07	1.25	0.42	—	1.21	0.05
Mulapeta	I	95.19	1.01	2.16	—	0.42	1.22	96.46	0.97	0.57	1.85	0.15	—	96.74	0.76	0.71	—	0.41	1.38
	II	95.30	0.82	0.69	1.94	1.25	—	96.70	0.72	0.69	1.56	0.33	—	97.74	0.57	0.17	—	0.79	0.73
	III	93.09	1.80	2.65	—	0.85	1.61	95.64	1.44	0.81	1.68	0.43	—	97.74	0.57	0.17	—	0.79	0.73
Naupada	I	98.28	0.45	0.26	—	0.26	0.75	97.14	1.11	0.11	0.59	1.05	—	97.50	0.49	0.72	0.04	1.25	—
	II	98.58	0.41	0.53	—	0.23	0.25	97.68	0.73	0.08	1.30	0.21	—	97.57	1.20	0.42	0.42	0.39	—
	III	97.90	0.63	0.63	—	0.71	0.13	96.49	0.67	1.07	1.49	0.28	—	97.03	1.15	0.38	1.31	0.13	—
Calingapatam	III	94.06	0.84	1.83	2.95	0.32	—	94.12	0.69	1.99	3.18	0.02	—	94.17	0.52	1.76	—	1.24	2.31
Kuppili	I	96.45	0.57	0.97	1.99	0.02	—	96.20	0.56	1.20	2.00	0.04	—	96.79	0.70	0.88	—	0.87	0.76
Konada	III	93.17	1.62	1.61	—	1.68	1.92	94.54	0.90	1.12	2.10	1.34	—	95.98	0.91	0.42	—	1.14	1.55
Bimilipatam	II	94.06	0.84	1.83	2.95	0.32		94.12	0.69	1.99	3.18	0.02	—	94.71	0.66	2.03	—	1.02	1.58
	III	94.01	0.57	2.10	3.25	0.07	—	94.04	2.40	—	3.32	0.24	—	94.61	0.72	2.08	—	0.75	1.84
Karasa	I	98.42	0.74	0.24	0.33	0.27	—	98.47	0.20	0.80	0.40	0.13	—	98.09	0.51	0.39	—	0.25	0.75
Bahcheruvu	I	98.58	0.25	—	—	0.16	1.01	96.12	0.67	0.62	—	0.63	1.96	97.63	0.56	0.46	1.25	0.10	—
	II	98.31	0.22	—	—	0.07	1.40	97.07	1.03	0.42	—	0.19	1.29	97.85	0.70	0.36	1.02	0.06	—
Vadacheepurapalli	I	97.17	0.54	0.70	1.56	0.03	—	97.07	1.03	0.42	—	1.19	0.29	97.47	0.63	0.56	1.29	0.05	—
Pudimadaka	I	98.49	0.44	—	—	0.07	1.00	96.98	0.75	0.77	1.37	0.13	—	97.61	0.70	0.60	—	0.19	0.90
	II	96.74	0.53	0.86	1.24	0.63	—	96.32	0.41	1.10	2.01	0.16	—	96.63	0.14	1.33	—	0.10	1.80
Polavaram	I	94.06	0.84	1.83	2.95	0.32	—	94.12	0.69	1.99	3.18	0.02	—	94.86	2.11	0.71	—	0.71	1.61
	II	94.28	0.70	1.64	2.95	0.43	—	94.01	0.57	2.10	3.25	0.07	—	94.56	1.22	2.10	—	2.10	0.02
Jagannaickpur	I	97.77	0.78	0.27	0.16	1.02	—	97.05	1.39	0.45	0.85	0.26	—	95.59	1.16	1.55	1.50	0.20	—
	II	94.48	0.90	1.82	1.86	0.94	—	96.46	0.97	0.57	1.85	0.15	—	95.30	0.82	0.69	1.94	1.25	—
Guruzanapallee	I	95.41	1.12	0.18	0.19	3.10	—	92.35	1.64	1.85	3.09	1.07	—	92.32	0.62	2.16	4.77	0.13	—
	II	94.17	0.91	0.29	1.19	3.44	—	95.52	0.76	1.23	2.28	0.21	—	93.78	0.94	2.23	2.53	0.52	—
	III	93.26	1.01	0.66	1.48	3.59	—	96.87	1.26	0.50	0.57	0.80	—	92.45	1.09	2.26	3.90	0.30	—
Penuguduru	II	97.29	0.79	0.14	—	1.73	0.05	96.72	1.08	0.33	0.52	1.35	—	97.16	0.52	0.39	0.53	1.40	—
	III	96.83	0.54	0.18	0.49	1.96	—	96.10	0.76	0.21	2.07	0.86	—	94.54	0.90	1.12	2.10	1.34	—
Polekuru	I	95.83	1.80	0.83	0.77	0.72	—	95.06	0.38	0.74	1.19	2.63	—	96.61	0.87	0.45	1.01	1.06	—
Manginapudi	I	92.28	0.33	1.98	4.32	1.09	—	97.09	1.02	0.24	0.42	1.23	—	94.96	1.07	1.19	2.29	0.49	—
	III	96.03	0.64	1.03	1.17	1.13	—	96.68	1.06	0.71	0.39	1.16	—	95.34	0.88	1.01	2.37	0.28	0.12

Bandar	I	95.52	0.27	0.98	1.50	1.73	—	95.37	1.40	0.72	1.20	1.31	—	95.21	0.66	1.50	2.59	0.04	—
	II	92.55	0.79	1.52	2.62	2.52	—	96.51	1.04	0.33	0.64	1.48	—	95.20	0.66	1.47	2.58	0.09	—
Chinnaganjam North	II	93.40	2.60	0.19	1.08	2.73	—	93.03	1.07	2.00	2.98	0.92	—	94.14	1.41	1.05	1.47	1.93	—
	III	93.44	1.05	0.14	1.99	3.38	—	94.14	1.41	1.05	1.47	1.93	—	94.54	1.22	0.95	1.35	1.94	—
Chinnaganjam South	II	96.63	0.62	0.34	—	1.90	0.51	94.52	0.71	2.04	2.36	0.37	—	96.77	1.76	0.47	0.51	0.49	—
	III	96.94	0.19	1.33	0.62	0.92	—	94.97	0.52	1.89	2.08	0.54	—	97.05	0.69	0.54	0.65	1.07	—
Kanuparti . .	I	98.06	0.93	—	0.56	0.42	0.03	97.12	1.12	0.22	1.22	0.32	—	98.04	0.75	0.23	0.47	0.51	—
	II	96.68	1.24	0.24	1.23	0.61	—	94.17	1.11	0.85	3.34	0.53	—	96.70	0.72	0.69	1.56	0.33	—
	III	96.03	0.66	1.01	1.19	1.11	—	95.42	1.04	0.48	2.77	0.29	—	98.02	0.47	0.27	0.74	0.50	—
Padarthi . .	II	97.68	0.73	—	1.30	0.21	0.08	97.34	1.28	0.18	0.85	0.35	—	94.19	2.50	0.22	2.05	1.04	—
Pakala . .	II	96.49	1.43	0.57	0.77	0.74	—	96.56	0.71	0.94	0.95	0.84	—	96.18	0.54	1.43	1.50	0.35	—
	III	95.89	1.57	0.76	0.64	1.14	—	95.98	0.65	0.97	0.83	1.57	—	95.45	0.80	0.98	1.01	1.76	—
Iskapalli . .	II	96.30	0,34	0.40	1.96	1.00	—	96.68	1.26	0.42	0.70	0.94	—	95.16	0.82	2.45	1.55	0.02	—
	III	97.12	0.79	0.80	0.29	1.00	—	96.49	0.67	1.07	1.49	0.28	—	96.49	0.67	1.07	1.49	0.28	—
Krishnapatam . .	II	96.87	1.26	0.52	0.55	0.80	—	97.14	1.11	0.11	0.59	1.05	—	96.72	0.86	0.40	0.30	1.72	—
	III	96.20	0.56	1.30	1.90	0.04	—	97.31	1.53	0.32	0.19	0.65	—	96.10	1.01	1.07	0.89	0.93	—
Tada .	II	95.30	0.83	0.70	1.90	1.29	—	95.19	0.77	1.23	1.40	1.41	—	95.98	0.91	0.42	1.55	1.14	—
	III	95.20	0.92	0.69	1.94	1.25	—	95.45	0.76	1.08	1.19	1.52	—	95.53	0.77	1.21	2.28	0.21	—

GOA, DIU & DAMAN

Diu . .	I	95.59	1.16	1.55	1.50	0.20	—	95.53	0.66	1.46	2.31	0.04	—	95.52	1.20	1.35	1.90	0.03	—
	II	98.91	0.66	0.12	0.23	0.08	—	97.37	0.51	0.84	1.24	0.04	—	97.60	0.71	0.61	0.90	0.18	—
	III	95.37	1.40	0.72	1.20	1.31	—	96.51	0.65	1.28	1.85	0.07	—	95.88	0.65	1.63	1.73	0.11	-

GUJARAT

Jamnagar-A . .	I	98.09	0.93	0.15	0.46	0.27	0.10	97.39	0.60	0.72	1.25	0.04	—	97.50	0.72	0.54	1.16	0.08	—
Jamnagar-B . .	I	98.02	0.54	0.44	0.96	0.04	—	98.43	0.55	0.35	0.65	0.02	—	97.92	0.72	0.27	0.86	0.23	—
Singach . .	I	98.44	0.51	0.22	0.52	0.31	—	98.77	0.52	0.22	0.45	0.04	—	98.51	0.64	0.10	0.65	0.10	—
Salaya . .	I	99.09	0.41	0.25	0.17	0.08	—	98.49	0.61	0.33	0.49	0.08	—	98.17	0.50	0.48	0.73	0.12	—
Mithapur . .	I	99.79	0.11	0.03	0.03	0.04	—	99.88	0.04	0.02	0.04	0.02	—	99.84	0.05	0.05	0.05	0.01	—
Bhavanagar . .	I	98.11	0.56	0.49	0.76	0.08	—	94.01	0.57	2.10	3.25	0.07	—	99.33	0.39	0.12	0.09	0.07	—
Rajula City . .	I	98.81	0.57	0.17	0.32	0.13	—	97.50	0.49	0.72	1.25	0.04	—	97.34	0.70	0.60	0.80	0.56	—
Porbandar . .	I	98.21	0.13	0.26	0.72	0.17	0.51	98.88	0.29	0.45	0.14	0.24	—	99.04	0.41	0.06	0.45	0.04	—
Kutch area . .	I	98.13	0.16	0.20	1.32	0.19	—	97.15	0.62	0.84	1.27	0.12	—	97.76	0.70	0.50	0.80	0.24	
	II	97.45	0.45	0.64	1.38	0.08	—	96.75	0.65	0.95	1.47	0.18	—	96.45	0.67	1.08	0.82	0.98	—
	III	95.52	0.60	0.82	0.80	0.26	—	96.70	1.28	0.38	0.70	0.94	—	98.45	0.40	0.52	0.24	0.39	—
Kuda . .	I	97.76	0.62	0.31	0.60	0.61	—	97.57	1.20	0.42	0.72	0.39	—	97.25	0.63	0.60	1.26	0.26	—
	II	97.25	0.70	1.00	0.90	0.15	—	97.95	1.03	0.38	0.37	0.27	—	97.43	0.44	1.03	0.83	0.28	—
	III	98.22	0.46	0.74	0.15	0.43	—	98.25	1.33	0.06	0.16	0.20	—	98.01	0.54	0.34	0.32	0.79	—

ANNEXURE 9.1—*contd*

Name of the salt Fy. and Category		1977						1978						1979					
		NaCl	CaSo₄	MgSo₄	MgCl2	Insolubles	Undetermind	NaCl	CaSo₄	MgSo₄	MgCl₂	Insolubles	Undetermind	NaCl	CaSo₄	MgSo₄	MgCl₂	Insolubles	Undetermind
Halvad . .	I	98.41	0.71	0.16	0.51	0.21	—	98.21	0.47	0.74	0.15	0.43	—	98.27	0.63	0.44	0.35	0.31	—
	II	97.76	0.62	0.31	0.61	0.60	—	97.29	0.91	0.07	1.55	0.18	—	97.43	0.44	1.03	0.83	0.27	—
	III	97.50	0.35	1.50	0.06	0.59	—	97.31	1.14	0.40	1.01	0.14	—	97.81	0.73	1.01	0.17	0.28	—
Maliya . .	I	97.03	1.15	0.38	1.31	0.13	—	97.00	0.89	0.74	1.31	0.06	—	97.12	0.53	0.23	0.20	1.92	—
	II	97.57	0.54	0.96	0.87	0.06	—	97.14	1.10	0.12	0.59	1.05	—	97.61	0.76	0.48	0.56	0.59	—
	III	98.01	0.54	0.34	0.32	0.79	—	98.65	0.57	0.10	0.55	0.13	—	98.47	0.20	0.80	0.40	0.13	—
Kharaghoda . .	I	98.19	0.49	0.74	0.15	0.43	—	98.87	0.78	0.08	0.15	0.12	—	98.01	0.54	0.34	0.32	0.79	—
	II	95.64	1.44	0.81	2.05	0.06	—	97.18	0.59	1.04	0.98	0.21	—	98.45	0.64	0.26	0.46	0.19	—
	III	97.88	1.53	0.05	0.10	0.44	—	98.06	0.92	0.18	0.45	0.39	—	98.15	0.65	0.36	0.70	0.14	—
Cambay . .	I	97.30	0.6	0.69	1.35	0.04	—	98.06	0.76	0.39	0.58	0.21	—	97.18	1.11	0.41	1.05	0.25	—
Dahej . .	I	97.34	0.48	0.86	0.93	0.39	—	97.23	0.65	0.53	1.47	0.12	—	97.72	0.66	0.49	1.02	0.11	—
Dharasna . .	I	97.86	0.63	0.54	0.96	0.01	—	96.45	0.57	0.97	1.99	0.02	—	96.92	0.63	0.64	1.44	0.37	—
	II	95.66	0.70	1.22	1.98	0.44	—	97.03	0.60	0.84	1.19	0.34	—	96.68	0.55	0.76	0.71	1.30	—
	III	96.20	0.56	1.20	2.00	0.04	—	96.49	0.46	0.99	2.00	0.05	—	95.22	0.41	0.88	1.78	0.71	—
								KARNATAKA											
Sanikataa . .	II	94.28	0.70	1.64	2.95	0.43	—	94.64	0.78	1.57	2.63	0.38	—	94.67	1.61	1.29	2.05	0.38	—
	III	95.25	1.14	1.09	1.90	0.62	—	94.79	1.35	1.25	1.99	0.62	—	91.96	1.34	2.22	3.52	0.96	—
								MAHARASHTRA											
Maroli . .	I	97.17	0.52	0.64	1.65	0.02	—	96.59	0.46	0.91	2.02	0.02	—	97.12	0.57	0.70	1.45	0.15	—
	II	95.44	0.77	1.38	2.40	0.01	—	94.12	0.69	1.99	3.18	0.02	—	95.21	0.66	1.50	2.59	0.04	—
Palghar . .	I	97.88	0.33	0.65	1.08	0.06	—	96.34	1.11	0.79	1.73	0.03	—	96.25	0.71	0.95	2.03	0.06	—
	III	97.21	0.64	0.85	1.28	0.02	—	97.20	0.51	0.72	1.55	0.02	—	97.47	0.63	0.56	1.29	0.05	—
Rai . .	I	96.99	0.42	0.91	1.66	0.02	—	97.23	0.41	0.89	1.46	0.01	—	97.33	0.47	0.73	1.36	0.11	—
	II	96.83	0.42	0.93	1.78	0.04	—	97.41	0.45	0.81	1.23	0.05	—	95.32	0.41	1.10	2.01	0.16	—
Bassein . .	I	96.49	0.54	1.02	1.93	0.02	—	97.23	0.57	0.71	1.45	0.04	—	95.14	0.60	1.14	2.01	0.11	—
	II	96.18	0.78	0.97	1.90	0.17	—	96.58	1.13	0.82	1.20	0.27	—	95.07	0.48	1.14	1.99	0.32	—
	III	97.45	0.59	0.71	1.24	0.01	—	96.90	0.76	0.80	1.45	0.09	—	95.41	0.48	1.24	1.75	0.12	—
Trombay . .	I	97.55	0.55	0.71	1.15	0.04	—	97.63	0.56	0.46	1.25	0.10	—	96.54	0.63	0.97	1.40	0.18	0.28
	II	97.08	0.57	0.91	1.38	0.06	—	96.83	0.44	0.89	1.78	0.06	—	96.98	0.75	0.77	1.37	0.13	—
Thana . .	I	98.13	0.54	0.55	0.76	0.02	—	97.86	0.70	0.36	1.02	0.06	—	96.29	0.61	1.03	2.00	0.07	—
Bhandup . .	I	95.94	0.68	1.13	1.97	0.28	—	95.16	0.58	1.48	2.58	0.20	—	95.34	0.88	1.01	2.37	0.28	0.12
Wadala . .	I	96.03	0.63	1.03	1.85	0.46	—	96.29	0.85	0.71	1.86	0.29	—	96.74	0.53	0.86	1.24	0.63	—
	II	95.34	0.73	1.35	2.17	0.41	—	95.32	0.86	1.13	2.41	0.28	—	94.96	1.07	1.19	2.29	0.49	—

Belapur	I	96.62	0.58	1.03	1.72	0.05	—	97.17	0.54	0.70	1.56	0.03	—	97.03	0.57	0.82	1.53	0.05	—
	II	96.03	0.54	1.32	2.06	0.05	—	97.23	0.59	0.73	1.41	0.04	—	95.20	0.66	1.47	2.58	0.09	—
Uran	II	94.06	0.84	1.83	2.95	0.32	—	93.44	0.76	1.73	3.03	0.29	0.75	92.62	0.87	2.18	3.01	0.46	0.86
Karanja	II	94.12	0.69	1.99	3.81	0.02	—	94.18	0.60	1.93	2.87	0.32	0.10	93.62	0.89	2.00	3.13	0.36	—
	III	94.41	1.29	1.45	2.41	0.44	—	94.86	0.95	1.54	2.43	0.22	—	94.46	0.82	1.62	2.81	0.29	—
Shewa	I	95.76	0.57	1.33	2.19	0.15	—	95.10	0.48	1.42	2.21	0.31	0.48	95.84	0.30	1.31	2.10	0.29	0.16
	II	94.64	0.73	1.72	2.63	0.27	—	94.38	0.83	1.69	2.78	0.32	—	94.50	0.79	1.58	2.32	0.33	0.48
	III	95.25	0.63	1.50	2.39	0.23	—	92.14	0.88	2.32	3.66	0.38	0.62	93.25	0.94	2.23	3.10	0.48	—
Panvel	II	93.67	0.93	1.72	3.25	0.43	—	97.43	0.51	0.34	1.36	0.16	0.20	92.76	1.28	2.06	3.24	0.66	
Pen	I	94.66	0.92	1.72	2.31	0.39	—	96.62	0.48	0.94	1.88	0.08	—	94.90	0.86	1.34	2.45	0.45	—
	II	95.00	0.73	1.40	2.47	0.40	—	96.42	0.62	1.93	0.67	0.36	—	94.67	0.78	1.45	2.63	0.47	—
	III	96.40	0.54	0.96	1.99	0.11	—	93.65	1.09	1.73	3.22	0.31	—	95.87	0.16	0.91	2.13	0.23	0.70
Shiroda	II	94.29	0.44	1.95	3.01	0.31	—	95.32	0.96	0.96	1.36	0.47	0.93	94.80	0.70	1.75	2.42	0.33	—
	III	94.19	0.64	1.74	2.42	1.01	—	95.51	1.17	0.94	1.37	1.01	—	94.90	1.01	1.36	2.12	0.61	—
ORISSA																			
Astrang	III	96.62	0.48	0.94	1.88	0.08	—	96.20	0.96	0.27	1.43	1.14	-	96.61	0.48	0.46	1.71	0.74	—
Bolong	III	96.34	0.97	0.22	1.44	1.03	—	96.25	0.94	0.28	1.37	1.16	—	96.83	0.74	0.66	1.53	0.24	—
Ganjam	II	96.24	0.93	0.33	1.37	1.13	—	96.17	0.97	0.27	1.38	1.21	—	96.22	0.45	0.84	0.92	0.86	0.71
	III	96.68	0.55	0.74	0.73	1.30	—	96.26	0.94	0.28	1.39	1.13	—	96.72	0.85	0.44	0.25	1.74	—
Goka	III	96.21	0.96	0.25	1.41	1.17	—	95.55	0.95	0.21	1.41	1.88	—	96.12	1.35	0.80	0.93	0.80	—
Sumadi	I	96.29	0.98	0.25	1.27	1.21	—	96.32	0.98	0.26	1.30	1.14	—	96.49	0.95	0.96	1.35	0.25	—
	II	97.07	0.45	0.74	0.50	1.24	—	96.29	0.95	0.30	1.34	1.12	—	96.69	0.84	0.86	1.19	0.42	—
Suria	I	96.21	0.97	0.21	1.43	1.18	—	96.13	0.97	0.28	1.38	1.24	—	96.49	1.00	0.28	1.34	0.89	—
	III	96.20	0.96	0.27	1.43	1.14	—	96.19	0.95	0.31	1.33	1.22	—	96.23	0.38	1.88	1.02	0.49	—
PONDICHERRY																			
Karaikal	I	96.58	0.41	1.50	1.21	0.30	—	95.86	0.86	0.40	1.67	1.21	—	94.66	0.53	2.15	2.03	0.63	—
RAJASTHAN																			
Pokaran	II	96.17	0.11	0.15	—	0.27	3.30	97.57	1.38	0.25	—	0.17	0.63	97.77	1.59	0.27	—	0.28	0.08
Phalodi	II	95.93	0.42	0.47	—	0.13	3.05	94.42	1.35	1.30	—	0.18	2.75	97.77	1.59	0.29	—	0.28	0.07
	III	97.36	0.79	0.41	—	0.18	1.26	98.09	0.59	0.32	—	0.48	0.52	97.54	1.09	0.34	—	0.15	0.88
Pachbhadra	I	97.76	0.33	1.32	—	0.42	1.17	93.26	1.23	0.72	—	0.72	4.07	96.90	0.59	0.34	—	0.84	1.33
Didwana	I	93.29	0.18	—	—	0.57	5.96	88.91	0.15	0.21	—	0.74	9.99	91.97	0.35	0.13	—	0.81	6.74
Sujangarh	II	96.13	0.43	1.41	—	0.18	1.85	97.11	1.46	0.44	—	0.20	0.79	95.46	3.01	0.38	—	1.00	0.15
	III	94.86	0.28	4.41	—	0.09	0.36	98.31	0.42	1.04	—	0.06	0.17	95.79	1.87	0.46	—	0.47	1.41
Rewasa	II	96.22	0.45	0.84	0.92	0.86	0.71	96.58	0.48	0.75	—	0.17	2.02	96.19	1.54	1.45	—	0.53	0.29
Kuchaman City	I	97.03	0.20	0.23	—	0.05	2.49	96.35	0.17	0.34	—	0.15	2.99	96.17	0.31	0.29	—	0.25	2.98
	II	97.23	0.13	0.08	—	0.10	2.46	93.07	0.32	0.40	—	0.13	6.08	96.25	0.12	0.11	—	0.09	3.43

ANNEXURE 9.1—*contd.*

Name of the salt Fy. and Category		1977						1978						1979					
		NaCl	CaSo$_4$	MgSo$_4$	MgCl$_2$	Insolubles	Undetermind	NaCl	CaSo$_4$	MgSo$_4$	MgCl$_2$	Insolubles	Undetermind	NaCl	CaSo$_4$	Mago$_4$	MgCl$_2$	Insolubles	Undetermind
Mithri	II	98.04	0.87	0.08	—	0.08	0.93	96.79	2.06	0.04	—	0.17	0.94	97.27	1.96	0.19	—	0.20	0.38
Sargot	II	94.12	0.18	0.62	—	0.09	4.99	94.51	1.24	0.17	—	0.25	3.83	93.15	1.07	0.22	—	0.41	5.15
Jabdinagar	II	95.41	0.36	1.31	—	0.17	2.75	94.47	0.47	1.01	—	0.21	3.84	98.09	0.66	0.85	—	0.19	0.21
Sambhar Lake	I																		
Lake salt—		No production						97.72	0.11	0.02	—	0.91	1.24	98.70	0.15	0.17	—	0.62	0.36
Reshta salt—		No production						98.86	0.02	—	—	0.53	0.59	98.35	0.12	0.04	—	0.58	0.91
Pan salt—		No production						97.63	0.13	—	—	1.47	0.77	96.12	0.53	0.51	—	0.59	2.35
TAMIL NADU																			
Voyalur	II	97.07	0.58	0.93	0.79	0.63	—	97.07	0.58	0.93	0.79	0.63	—	97.12	0.53	0.23	0.20	1.92	—
	III	96.01	0.66	1.80	1.05	0.48	—	95.63	0.48	1.76	1.75	0.38	—	95.59	1.16	1.55	1.50	0.20	—
Thillai	I	95.98	0.62	0.78	2.27	0.35	—	97.47	0.83	0.38	0.30	1.02	—	96.91	0.33	1.46	0.76	0.54	—
	II	95.00	0.76	1.19	1.08	1.97	—	93.11	0.76	2.16	1.94	2.03	—	94.24	0.63	1.90	2.70	0.53	—
Attiput North	I	96.38	0.65	1.04	1.82	0.17	—	95.85	0.44	1.64	1.89	0.18	—	95.09	0.65	1.88	2.00	0.38	—
	II	97.05	0.66	0.85	0.99	0.45	—	96.20	0.41	0.45	2.72	0.22	—	96.23	0.35	1.91	1.04	0.47	—
	III	95.90	0.42	1.40	1.34	0.94	—	95.09	0.65	1.88	2.00	0.38	—	95.89	1.57	0.76	0.64	1.14	—
Attiput South	I	95.28	0.55	1.07	1.52	1.58	—	95.70	1.05	0.54	1.91	0.80	—	95.93	0.42	0.47	—	0.13	3.05
	II	96.68	1.06	0.71	0.39	1.16	—	97.77	0.53	0.35	1.10	0.25	—	97.23	0.13	0.08	0.10	1.06	1.40
	III	94.43	0.55	2.36	2.15	0.51	—	94.66	1.93	1.00	1.36	1.05	—	94.34	0.93	1.44	2.82	0.47	—
Vallur	II	98.01	0.54	0.34	0.32	0.79	—	96.92	0.43	0.99	1.31	0.35	—	97.25	0.63	0.60	1.26	0.26	—
	III	97.90	0.78	0.53	0.23	0.56	—	95.94	0.74	1.13	1.73	0.46	—	96.23	0.34	1.81	1.40	0.22	—
Covelong	I	96.20	0.44	0.45	2.72	0.22	—	98.27	0.63	0.44	0.35	0.31	—	98.04	0.87	0.08	0.08	0.93	—
	II	97.77	0.79	0.34	0.17	0.93	—	96.72	0.87	0.43	0.28	1.71	—	96.79	0.96	0.68	0.73	0.84	—
	III	95.76	1.05	0.72	1.26	1.21	—	97.34	0.48	0.86	0.93	0.39	—	96.25	0.72	0.71	0.65	1.67	—
Chunampet	I	97.36	0.79	0.45	0.16	1.24	—	96.90	0.59	0.34	0.84	1.33	—	97.14	1.10	0.12	0.59	1.05	
	II	97.11	0.86	0.60	0.44	0.99	—	97.57	0.68	0.70	0.25	0.80	—	97.12	0.53	0.23	0.20	1.92	—
	III	97.77	1.59	0.29	0.28	0.07	—	97.03	0.20	1.23	0.05	1.49	—	97.61	0.76	0.48	0.56	0.59	—
Markanam	I	94.19	0.80	0.68	3.82	0.51	—	95.28	0.55	1.07	1.52	1.58	—	95.15	0.97	1.29	2.31	0.28	—
	II	93.28	0.80	1.66	3.39	0.87	—	94.43	0.55	2.36	2.15	0.51	—	94.24	0.63	1.90	2.70	0.53	—
	III	94.34	0.93	1.44	2.82	0.47	—	93.40	1.07	1.49	2.95	1.09	—	95.28	0.72	1.18	2.53	0.29	—
Cuddalore	II	95.85	0.44	1.64	1.89	0.18	—	95.39	0.34	2.25	1.57	0.45	—	93.45	0.55	3.55	1.89	0.56	—
Manambadi	II	No production						No production						93.78	1.13	1.56	2.77	0.76	—
Neidavasal	II	94.36	1.14	1.73	2.50	0.27	—	93.61	0.36	2.60	2.55	0.88	—	93.15	1.07	1.22	2.43	2.13	—
	III	93.09	0.56	2.62	3.46	0.27	—	93.07	0.32	2.40	2.13	2.08	—	93.56	0.86	1.74	2.18	1.66	—
Vedaranyam	II	95.09	0.65	1.88	2.00	0.38	—	97.29	0.91	0.07	1.55	0.18	—	96.91	0.33	1.46	0.76	0.54	—
Parent	III	93.56	0.86	1.74	2.18	1.66	—	97.31	1.14	—	1.41	0.14	—	96.72	0.82	1.25	1.09	0.12	—
Vedaranyam	I	96.17	0.11	2.15	0.27	1.30	—	96.68	0.55	0.76	0.71	1.30	—	97.43	0.44	1.03	0.83	0.27	—
Extension	II	97.11	1.46	0.44	0.20	0.79	—	94.93	0.55	1.68	2.74	0.10	—	97.81	0.73	1.01	0.17	0.28	—
	III	95.79	1.87	0.46	0.47	1.41	—	95.35	0.42	0.94	2.80	0.49	—	94.75	0.82	1.51	2.34	0.58	—

Thambikottai	II	96.21	0.47	0.74	0.15	0.43	—	96.22	0.41	0.88	1.78	0.71	—	97.25	0.63	0.70	1.26	0.26	
Adiramapatnam	I	97.76	0.62	0.31	—	1.21	—	95.55	0.63	1.63	1.32	0.87	—	95.63	0.28	2.29	1.40	0.40	
	II	97.50	0.35	1.50	0.06	0.59	—	94.86	0.38	2.07	2.53	0.16	—	97.95	0.60	0.24	0.89	0.23	
	III	96.23	0.35	1.91	1.04	0.47	—	94.83	0.61	1.88	2.38	0.30	—	92.60	0.82	1.90	3.64	1.04	
Kattumavadi	II	94.43	1.41	1.77	0.95	1.44	—	97.74	0.51	0.82	0.93	—	—	96.23	0.34	1.81	1.40	0.22	—
Theethandathanam	III	96.19	2.99	—	0.53	0.29	—	97.00	1.86	—	0.99	0.15	—	96.62	1.94	—	0.97	0.47	—
Vattanam	III	97.00	1.95	—	0.90	0.15	—	96.69	1.68	—	1.21	0.42	—	97.01	1.42	—	0.99	0.58	—
Morekulam	I	No pro duction						97.79	0.61	0.54	0.93	0.13	—	95.83	1.15	0.36	1.59	1.07	—
	II	97.47	1.15	0.37	0.76	0.25	—	97.1	0.80	0.45	1.39	0.18	—	96.94	1.34	0.40	0.58	0.74	—
Veppalodai	I	98.72	0.28	0.18	0.21	0.01	0.60	98	0.20	0.90	0.40	0.13	—	97.86	0.43	0.84	0.52	0.35	—
	II	98.68	0.26	0.76	0.29	0.01	—	97.81	0.47	0.98	0.41	0.33	—	97.52	0.66	0.86	0.53	0.33	—
Arasadi	II	97.74	1.23	0.38	0.47	0.18	—	96.49	0.97	0.94	1.37	0.23	—	94.99	0.60	1.45	2.71	0.25	—
	III	97.79	0.86	0.29	0.87	0.19	—	94.91	.06	1.57	2.21	0.25	—	96.92	0.63	0.54	1.44	0.37	—
Kalavasal	III	97.25	0.85	1.00	0.69	0.21	—	97.25	.85	1.00	0.69	0.21	—	97.18	1.11	0.41	1.05	0.25	—
Karapad	I	97.63	0.13	1.00	0.47	0.77	—	97.07	.73	0.82	1.24	0.14	—	97.72	0.66	0.49	1.02	0.11	—
	II	97.76	0.33	1.32	0.42	1.17	—	97.20	61	0.94	0.99	0.26	—	98.00	0.55	0.58	0.73	0.14	—
	III	97.03	0.49	0.74	0.50	1.24	—	96.40	85	0.83	1.66	0.26	—	98.45	0.64	0.26	0.46	0.19	—
Levingipuram	II	97.59	0.93	0.45	0.85	0.18	—	96.97	09	0.60	1.28	0.06	—	98.02	0.58	0.79	0.33	0.28	—
	III	97.72	0.70	0.65	0.72	0.21	—	96.63	[illegible]	0.68	1.75	0.02	—	97.83	0.62	0.90	0.46	0.19	—
Sevandakulam	II	96.13	0.43	1.41	0.18	1.85	—	96.90	[illegible]	—	1.34	0.18	—	91.51	1.56	—	0.80	0.13	—
	III	94.51	1.24	0.17	0.25	3.83	—	94.04	[illegible]	—	3.32	0.24	—	97.38	1.19	—	1.16	0.27	
Urani	I	97.77	0.49	0.68	0.95	0.11	—	[illegible]	[illegible]	0.53	1.00	0.05	—	97.40	0.74	0.58	1.03	0.25	
	II	98.37	0.76	0.10	0.56	0.21	—	[illegible]	[illegible]	0.66	0.80	0.03	—	97.59	0.65	0.61	0.98	0.17	
	III	96.90	0.59	0.34	0.84	1.33	—	96.12	[illegible]	0.84	0.90	0.83	—	96.92	0.74	0.70	1.39	0.25	—
Urani Extn.	I	97.86	0.02	0.27	0.26	0.59	—	98.42	0.74	0.24	0.33	0.27	—	98.15	0.65	0.36	0.70	0.14	—
Extension (II)	I	96.81	0.34	1.34	1.36	0.15	—	98.11	1.26	0.34	0.19	0.10	—	97.68	0.65	0.26	1.23	0.18	
Extension (I)	III	96.96	0.88	1.21	1.76	0.19	—	98.37	1.07	0.14	0.32	0.10	—	95.72	0.69	1.44	2.00	0.15	
Old Allom	III	94.54	1.14	0.71	3.32	0.29	—	97.47	0.59	1.63	0.11	0.20	—	95.39	0.39	1.32	2.68	0.22	—
S. M. G. N.	I	97.18	1.11	0.47	1.00	0.24	—	94.26	0.66	2.17	2.42	0.49	—	97.77	0.38	0.78	0.88	0.19	—
Puthallom	III	97.34	0.74	0.90	0.69	0.33	—	96.81	0.34	0.74	1.93	0.18	—	95.68	0.39	1.15	2.57	0.21	—
S.S. Allom	II	97.74	0.77	0.85	0.49	0.15	—	96.12	0.46	1.43	1.68	0.31	—	97.05	0.92	0.37	1.47	0.19	—
Rajakkamangalam	II	98.58	0.32	0.55	0.42	0.13	—	96.81	0.34	1.34	1.36	0.15	—	96.81	0.34	0.74	1.93	0.18	—
	III	95.39	0.39	1.32	2.68	0.22	—	94.54	1.14	0.71	3.32	0.29	—	96.12	0.46	1.43	1.68	0.31	—
Colachel	II	Not worked						94.56	0.24	2.68	2.33	0.19	—	94.54	1.14	0.71	3.32	0.29	—
S.C.T.M.	II	98.06	0.74	0.81	0.26	0.73	—	97.47	0.59	1.63	0.11	0.20	—	97.01	0.32	1.06	1.30	0.31	—
Palkulam	II	97.36	0.60	0.90	0.86	0.28	—	96.63	0.42	0.92	1.69	0.34	—	96.87	0.57	1.15	1.24	0.17	—
Thittarippuddai	II	96.81	0.34	0.74	1.93	0.18	—	96.63	0.40	0.94	1.66	0.37	—	96.85	0.21	0.23	2.59	0.12	—
										WEST BENGAL									
Contai	I	97.14	0.84	0.70	1.14	0.18	—	97.10	0.40	0.58	1.04	0.88	—	97.12	0.38	0.60	1.02	0.88	—
	II	96.90	0.80	0.79	1.16	0.35	—	96.85	0.85	0.82	1.13	0.35	—	96.82	0.88	0.85	1.10	0.35	—

84-L/P(N)347DofIDev—500—13-12-84—GIPS